Universidade de Aveiro Departamento de Economia, Gestão e Engenharia Industrial
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Joana Amaral Rodrigues Silva

TRANSPARÊNCIA E VOLATILIDADE: EVIDÊNCIA NOS MERCADOS EUROPEUS

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Dissertação apresentada à Universidade de Aveiro para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Economia, realizada sob a orientação científica da Doutora Elisabete Fátima Simões Vieira, Professora Adjunta do Instituto de Superior de Contabilidade e Administração da Universidade de Aveiro e sob co-orientação científica do Doutor Joaquim Carlos da Costa Pinho, Professor Auxiliar do Departamento de Economia, Gestão e Engenharia Industrial da Universidade de Aveiro.

Dedico este trabalho aos meus pais e ao Pedro pelo carinho, apoio e compreensão demonstrados neste período.

o júri

Presidente	Prof. Doutor Joaquim da Costa Leite Professor Associado com Agregação da Universidade de Aveiro
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palavras-chave

divulgações, transparência, assimetria de informação, normas contabilísticas, volatilidade.

resumo

Os mercados accionistas, enfrentando uma elevada concorrência, devem ser transparentes e justos. Consequentemente, o propósito desta dissertação é investigar o que determina a transparência e também, as suas consequências no mercado, nomeadamente, a volatilidade do preço das acções.

Esta preocupação levou a uma análise das práticas de divulgação em 86 empresas não financeiras da Euronext Lisboa e Bruxelas, considerando uma amostra comparativa de Portugal e Bélgica para o ano de 2008. A escolha foi feita considerando a dimensão dos respectivos mercados de capitais e o facto de ambos os países pertencerem à Euronext NV.

Na primeira parte da dissertação, é analisada a relação entre transparência e um conjunto de variáveis, tais como a dimensão da empresa, endividamento, auditores e rendibilidade. Para medir a transparência, são usados os índices CIFAR e S&P, que acomodam aspectos distintos das divulgações (contabilidade, governo da sociedade, estrutura accionista e outros aspectos relevantes).

Os resultados indicam que a dimensão das empresas, a rendibilidade e as ofertas de capital explicam de forma significativa a divulgação de informação, sugerindo que as empresas que apresentam maiores níveis de transparência tendem a ser as de maior dimensão e rendibilidade. Estes resultados suportam a hipótese de que a transparência é influenciada por algumas variáveis específicas das empresas.

Seguidamente, são investigadas as consequências económicas da transparência, focalizada na volatilidade dos preços das acções. Baseada na informação dos relatórios anuais, a evidência não suporta a hipótese da relação entre transparência e volatilidade. Considerando os relatórios trimestrais, é encontrado, para o segundo trimestre, uma relação negativa e significativa entre as variáveis, sugerindo que a volatilidade das acções tende a diminuir em empresas com maior transparência.

keywords

disclosures, transparency, information asymmetry, accounting standards, volatility.

abstract

The stock markets facing rough competition should be transparent and fair. Consequently, the purpose from this dissertation is to investigate the main causes of the information transparency as well as its consequences for the market, namely the stock price volatility.

This concern led to an analysis of the disclosure practices by 86 non-financial firms of Euronext Lisbon and Brussels, considering a matching sample of Portugal and Belgium non financial listed of firms for the year of 2008. The choice was made concerning the capital market size and the fact that both countries belong to Euronext NV.

Firstly, it is analyzed the relationship between transparency and a set of variables, such as the firm size, leverage, audit and profitability. To measure the transparency, are used CIFAR and S&Ps indices, which accommodate different aspects of disclosure (accounting, corporate governance, ownership structure and other relevant aspects).

The results show some variables that significantly explain the disclosure, such as the firm size, profitability and equity offer, suggesting that firms which present higher levels of transparency tend to be the ones of larger size and higher profitability. This could imply that transparency is influenced by some firm specific variables.

Furthermore, it is studied the economic consequences of transparency, focusing on the stock price volatility. Based on annual reports information, the evidence does not support the hypothesis of a relation between transparency and volatility. Considering the quarterly reports, it is find, for the second quarter, a negative and significant relation between the variables, suggesting that the higher the transparency, the lower the stock price volatility.

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1. Introduction

In a society depending on real time information, the disclosure by firms has several important contributes for the companies themselves, their financial structure and for investors. The market stability could be explained by the firm's transparency. The policy of disclosure depends on the firms: some of them freely divulging it, sometimes widely than what is stipulated by law, others maintaining the information as secret as they are allowed.

Consequently, the report of information disclosed by a company seems to be an important decision, with important consequences for the market. The characteristics of the information made available for all investors are an important key for the market efficiency. These are enough and important reasons to analyze the firms´ approach to the release of information in the Portuguese capital market.

On this subject, Akerlof (1970) introduced the concept of information asymmetry referring to the practice of withholding information in order to influence the behaviour of uncaptioned agents The so-called "lemons problem" points out precisely the asymmetric information and the conflicts of interest arising from, in this case, companies and investors. These information problems will lead to inefficiency in the financial market.

Therefore, disclosure could be considered as good or bad information, which can create flotation in share prices. The investors make decisions concerning disclosure, sometimes investing in ideas that are not, actually, good. Taking in account that most of shareholders cannot distinguish between a good or bad idea, underestimating the good ideas and overestimating the bad ones, those ideas become quality levelled and the "lemons problem" is not solved.

To reduce the asymmetry reported by Akerlof, financial information is greatly appreciated by investors. In addition to financial information, companies also disclose operations of the company's internal forum.

The more disclosures a company makes, the more transparent becomes the information to investors and the company will have more credit in the market. Thus, the stock price might rise. The quality of that transparency may be also assessed by the information provided by the external quality auditors and the comments of the market financial analysts.

The process of financial liberalization had its beginning in the early 70´s, but the integration in the European Community brought new rules to the financial markets, including the Portuguese one. The community rules between the countries and the subsequent single market for financial products and services cause some differences in the sophistication in the market.

The modifications created in the Monetary and Economic Union at the 1st of January from 1999, changed also bonds and shares negotiation in the financial market. Bonds and shares market was improved, modernized and gradually gained more relevance, attracting internationals investment. Although still limited, the Portuguese market was improved and deeper explored.

The developments operated in the financial intermediary system affected not only the companies of the financial sector, but also the economy in a broad sense, allowing new achievements in the efficiency of this financial system.

The financial sector always creates fluxes in the foreign investment and is a crucial item to the economic activities. The efficiency, transparency and liquidity in the exchange market generate satisfaction of the companies financing needs, with competitive costs.

In this context, it will be analyzed the disclosure situation in Portugal. Are the Portuguese firms transparent, regarding the level of their disclosure? This question will be dealt using a comparison with another European country, Belgium.

The examination here presented is conducted for Portugal in comparison with Belgium. This choice can be justified for several reasons. Firstly, all firms are listed on NYSE Euronext and have similar accounting regulation. Secondly, both this regulation and corporate governance are similar in both markets, what is explained by the spread of the International Accounting Standards (IAS) rules. Finally, the fact that the Belgian and Portuguese stock exchange markets are relatively small is an opportunity for good matching relations between them, as well.

The purpose of the dissertation is to examine the influence of several indicators (such as size, leverage, profitability, the type of auditor and equity offer) on the transparency of the non-financial listed firms in Portugal. As discussed later, firms have incentives to disclose until it is costly unbearable and strategically unsuitable, mainly when inside news are not good to disclose publicly. In addition, it is attempted to understand how the stock price volatility is modified in the presence of transparency modifications.

The major contribution of this study is based on several reasons. Firstly, it is tried to explore the key role of transparency on Portuguese stock market. Secondly, it is tried to identify the determinants of transparency. Finally, it is analyzed two European small markets, which are in need of research.

The structure of this dissertation is organized as follows. In chapter 2 it is presented the literature review. Chapter 3 formulates the measures of the transparency and the differences between them, as well as a proposal for the sample selection and the relative procedures. This chapter also explains how stock markets were created and deals with perspectives of the

Portuguese and Belgian markets in the year of 2008. The results of the econometrics tests and the descriptive statistics are presented, analysed and discussed on chapters 4. The final section summarises and concludes.

2. Literature Review

The transparency concept was born half century ago, but it was in this first decade of the 21 century it became unavoidable. The transparency related with business turns not only in a obligatory financial information from the regalements, but it is also an embraced concept. The concept means increasing access to information about all and any feature of the business performance by the all spectrum of stakeholders, i.e., all the economic and social agents linked to the company.

To have an effective collaboration, the companies and their partners, share information and knowledge in order to be competitive. Apart from this spirit, there are some powerful institutional investors who hold or manage a large proportion of business and require a lot of information on their investments. Finally, in a global scale, instant communication is nowadays a critical asset for any financial partner. All these points are reasons for the duty of transparency.

Furthermore, transparency generates benefits not only for the companies, but also for the global welfare of economy. Foreign direct investment and private domestic investment are attracted by all information that may be provided and are as well related to the quality of the governance. The efficiency allocation of resources is more present when transparency is more effective. Going towards market expectations, it helps to build an environment of reliability. Foreign direct investment is increased when the corporate transparency increases (Seyoum, 2009, Bhardwaj *et al.,* 2007, Beamish, 2007 and Razin and Sadka, 2007). For example, Bhardwaj *et al.* (2007) show that firms avoid certain countries to invest based on their cultural characteristics. The behavioural finance approaches also this subject with a bias that refers investors as non-rational agents, who will overweight the portfolios and tend to invest in a large amount of domestic equities, despite the purported payback of the foreign equities (Brandshaw *et al.*, 2004 and Hiraki *et al.,* 2003). Prior research points out that the main cause of home bias is the inability of many foreign firms to attract the initial attention of investors (Bradshaw *et al.*, 2004). The inability to attract the investors could be eliminated with more efforts to improve financial reporting practices (Ding *et al*, 2008).

Transparency is as well a source of costs reduction, namely the cost of capital reduces and the market liquidity increases (Healy and Palepu, 2001). The companies that are not transparent are associated with more transactions cost then the transparent ones, consequently, additional information needed to make an investment decision will have to be secured by extra costs (Seyoum, 2009).

It is important to refer that disclosure is not only possible because of the company's desire. The mandatory disclosure is a large part of the company's transparency, as discussed in a subsequent section, according to the accounting harmonization. The mandatory disclosure includes all the rules that are imposed to companies to exchange the relevant information and all the procedures regarding the financial information. The voluntary information is less and less frequent, because of the heavy requirements from the harmonized legislations, and it is all the information that companies give freely to investors without been required for the countries. This last type of information is more linked to ownership structure of the companies.

2.1 The Disclosure of firms affect the behaviour of shareholders and consequently the price volatility

The importance of information release by firms is quite imperative for the stock market. It is well documented the concern regarding the transparency of firms and their disclosure. Domestic investors as well as outsiders' investors extract firm's position and make a decision on the divulged data, deciding whether it is a good or a bad release. Disclosure is a way to provide the market with some liquidity, i.e., it could be said that the release of information via company raises market liquidity. On the other side, with a divergent perspective, some authors defend that market liquidity is inversely related to disclosure policy (Welker, 1995). That being the case, it will also reduce the cost of capital (Healy and Palepu, 2001). In their paper, Healy and Palepu (2001) made a compendium of empirical accounting literature in respect to disclosure, as well as a summary of the benefits. The main conclusion is that the quality of information created by the firm's transparency has an influence in the financial markets, which could be explained by an augment of entrepreneurship and economic change. On the other hand, the traditional reports don't work so well towards the transparency of the markets, as the changes made by the company are not effectively transmitted.

Several authors found a negative relationship between capital cost and the level of disclosure. Botosan (1997) presented two main ideas: one showed by Diamond and Verrecchia (1991), suggesting that wider disclosure brings an increase of market liquidity, since the cost of capital decreases with the costs of transaction and the increase of demand by the firm's bonds. The second theory, mentioned by Botosan (1997), supports that further disclosure will reduce the cost of capital, but the reason of that reduction is also the decrease of the non diversified risk. This suggestion was also addressed by Klein and Bawa (1976), Barry and Brown (1985), Handa and Linn (1993), Coles *et al.* (1995) and Clarkson *et al.* (1996).

Typically, several studies suggest that there is a positive effect in the capital market with a subsequent augment of disclosure. Botosan (1997), Sengupta (1998) and Botosan and Plumlee (2002) document this effect in relation to lower equity and debt costs.

Using regression techniques on a sample of 122 industries, Botosan (1997) obtained estimations relating the cost of capital and the disclosure level. The author concludes that more reports from the market analysts in the firms don't give any evidence in that relation; but situation of firms with lower announcing from the market analysts indicates that bigger disclosure is associated with a lower cost of capital.

Botosan and Plumlee (2002) suggest that there is relevance in the type of disclosure. This study is a re-analyze of the Botosan (1997) paper. They mention a negative relation between the cost of capital and the level of disclosure in annual reports, using the US data, and a positive relation with the rankings of quarterly disclosures, with news announcements and other relations' activities not associated to investors. According the authors, the larger level of timely disclosure will increase the cost of capital because it endorses the short-term trades which lead to bigger volatility of shares.

Sengupta (1998) finds a negative relation between Association for Investment Management and Research (AIMR)[1] disclosure scores and the *Moody's Bond Surveys* measures' of the cost of debt- bond yields. The study merged to the conclusion that the cost of debt reduces with bigger releasing of information.

The effects in capital market could also be seen by the reaction to earnings displayed by bigger stock price (Price, 1998). At last, this association will lead to smaller bid-ask spreads documented in Welker (1995), Healy *et al.* (1999) and Leuz and Verrecchia (2000).

Previous literature focuses essentially on the announcement impact in the investors' decisions. The Welker (1995) study sustains a relation between the asymmetry and the market liquidity. The author uses the bid-ask spreads to measure market liquidity, concluding that disclosure is negatively related with spreads. When market release information, it will be more symmetric in order of information, and the market become more liquid.

Several studies achieved the conclusion that disclosure is the ultimate source of efficiency in a financial market and made some recommendations. The asymmetry of information is also a concern and it occurs as a result of the investors' information and their different levels. Bigger asymmetry in the first disclosure creates a raise in the instant price. However, the maximum instant

[1] AIMR produced annual rankings of the corporate disclosure evaluations from several industries, up until 1996. The categories in AIMR scores were annual report, quarterly and other reports and investor relation activities.

price has some asymmetry. The more homogeneous is the information, the better we will know about decisions on going out in the capital market (Diamond and Verrecchia, 1991). The asymmetry reduction created by the disclosure will also modify the cost of capital (Diamond and Verrecchia, 1991; Verrecchia, 2001 and Zhang, 2001), as explained in the paragraph above.

If divulging increases, the necessary return by investors will decrease, that is, an opposite effect between them will occur, reducing the investors' risks and some smoothing the volatility. Those conclusions were obtained by Diamond and Verrecchia (1991), Elliot and Jacobson (1994), Coles *et al.* (1995), Botosan (1997, 2002, 2006) and Sengupta (1998). According to Botosan (2002), a higher frequency of disclosures could increase the cost of capital, probably through the increase of the stock price.

Verrecchia (2001) concludes that the bigger the asymmetry of the market , the less efficient the market may be. With a larger spread of information, in a homogeneous way, there will be more opportunity for an option of efficient disclosure and more incentives to disclose. This all process will create a bigger action between the agents and more health in the capital market. That explanation comes in a line of beliefs that says that more important than the combination of efficiency and disclosure is the combination of disclosure and information asymmetry reduction.

As mentioned before, the disclosure has an important impact in the cost of capital (Botosan, 1997 and Sengupta, 1998). Botosan (1997) estimates the cost of equity capital and concludes the disclosure index has a significant relation with the firm's cost of capital in the firms scarcely followed by analysts and firms with high analysts following has no evidence in that relation.

Meanwhile, Ang and Brau (2002) made an empirical study for 334 previous leveraged buyouts and a characteristic-matched control sample. They intended to test the proposition that a bigger level of transparency by a firm decreases the costs and changes the initial public offering on undisclosed topics. They conclude that there is evidence of different effects by disclosures when there are initial public offerings (IPO). Namely, firms that perform better and provide more information (more transparent) have lower costs to go public. This conclusion corroborates other previous studies. In addition, they conclude that larger private firms, planning to make free information available, should use ways to supply verification or certification of the quality of the disclosure.

2.1.1 Disclosures and price's volatility

Firm's policy regarding the dividends is crucial for the stock prices and its volatility. Allen and Rachim (1996) put together 173 Australian companies for the period from 1972 to 1982. They run a regression for stock price and the dividend policy measured by the firms' size, volatility of earnings, leverage and growth. The authors find no evidence supporting a positive relationship between dividend changes and the subsequent share price reaction. Although this result is not consensual with the information content of dividend hypothesis and previous studies, such as the ones of Asquith and Mullins (1983) and Lee and Ryan (2000), it is in agreement with recent studies (Gunasekarage and Power, 2002 and Vieira and Raposo, 2007). The main determinants explaining the price are the volatility earnings and firms leverage. The investor's payout is negatively related with price volatility.

Pinto (2003) made a study on the disclosure of several factors that could influence the price and the trade volume. She uses the divulgations to understand if it has valuable information to the market and if it is efficiently incorporated on stocks prices. The results show that "good" and "bad" news cause an abnormal profitability around the event day. Consequently, the author found evidence of a semi-strong efficient market. The volume traded in the market was also abnormal, but the return to the stability was slower, i.e., the adjustments still go after the price returns to the equilibrium value.

Disclosures could influence the portfolios composition of investors (Bushee and Noe, 2000). The information reported by the company is integrated in their investments composition. Bushee and Noe analyzed how investors react to the company's exposition of information, in the US market, and elaborated a report of all AIMR disclosure ratings. Better disclosure gives a good signal to the market, removing the uncertainty that exists because of the non-liberation of information. The release of information could reduce the magnitude of the impact of news about a firm's performance. Furthermore, the circulation of information reduces the prices volatility. This effect on volatility depends as well on the type of investors involved in the firm. For instance, the so called "transitory institutions", characterized for their aggressive trade, with a better disclosure will increase the stock return volatility.

Alves and Santos (2005) analyzed 1751 earnings announcements of Portuguese firms in the period from 1994 to 2004, as well as the respective informativeness of quarterly financial reporting. Taking in consideration that European Union (EU) decided that firms do not need to report

information from the first and third quarters[2], each one of the EU countries need to decide if their firms should be obliged or not to disclose that information. In the Portuguese case, firms must disclosure such information in all quarters. The results suggest that the first and third quarters information is also significantly related with price volatility and trading volume, suggesting informativeness of financial reporting for all the quarters.

2.1.2 Disclosures and firm's value

The relation between information releases and the firms' value has been studied by several authors. Holthausen and Verrecchia (1988), in a theoretical framework, studied the determinants of the magnitude of the sudden prices changes reactions to the information send towards the market. The relationship was analyzed by a series of two disclosures (transmitting the real distribution of risks and the noise) on two risky assets. The conjuncture of the market, regarding the settlement of assets dividends, means that prices change with a second disclosure. There is, subsequently, a great movement of prices. In short, the variance in price could be explained by the variance of the underlying cash flows, the quality of the first information released, and the inter-temporal and cross-sectional correlation in the noise of the information.

Leuz and Verrecchia (2000), based on a sample of 102 firms of the DAX-100 stock index over the year of 1998, conclude that when the level of disclosure increases, the information asymmetry declines. They also conclude that the release of information to the market brings welfare to the firm's economy. This could be explained by a decrease of the cost of capital, reducing the cost to acquire the information. Concerning the price volatility, the authors believe that international reports can't reduce share price volatility.

One more explanation emerges concerning the divulgation of information and the relationship with the value's firm. Diamond (1985) state that there are two effects to explain the existence of deliberated disclosure, when acquiring private information is costly, being one positive and the other negative. The disclosure will affect the costs of private information and the risk allocation. The cost of private information acquirement is reduced by disclosure. In the same way, disclosure affects in a bad way the risk distribution. Accordingly to Diamond, it could be said that the release of information brings a benefit to shareholders and not a loss. This assumption is justified by the cost that is saved in the open information and the mentioned share in the risk. This

[2] Directive 2004/109/EC, from December, 15, 2004 (Transparency Directive).

theory of the disclosure in firms announces is subscribed by other authors (Collins and Salatka, 1993; Kim, 1993; Welker, 1995; Botosan, 1997 and Hail and Leuz, 2009).

Information is always related with good news coming out from the firms, but bad news has to come out too. Skinner (1994) analyzed the disclosure of bad news. The detention of bad news causes the company to incur in more legal costs. In fact, Skinner says that the incentive to pre-disclose information in bad earnings is bigger to firms with regular situation, reducing the costs of litigation. This benefit can be explained because of the premature disclosure of bad news. The decline of prices is done on various dates, and not abruptly. This decline occurs prior to the release of results. There is a reduction in incentives for disclosure with the litigation, including forward-looking information.

Other perspective of disclosure arises in Healy and Palepu (1993). The key findings from the authors could be explained by a trade-off that firms need to do in disclosure. If firms disclose a lot of information they would have more costs and the benefits, removed by that release, may not be enough to cover the costs. The trade-off in the company needs to be seen as a strategy that will optimize the liberation of information. That theory is denominated buy "The inverted-U model" related in Nam *et al.* (2009). This designation may be explained because of the inverted-U shape of the graphic of the relationship between information disclosure and firm value, as well as with performance.

Inverse relation among costs of disclosure and firms transparency is suggested by Beatty and Ritter (1986). The firms from IPO do not give exhaustive information, but the information is regulated regarding amount, so that could lead to optimization.

Some indirect costs could also rise because there is some attraction to institutional investors that will result in more volatility of the price (Bushee and Noe, 2000).

A different perspective arises in Armitage and Marston (2008) work. The authors conduct a set of interviews about disclosure to finance directors. The interviews results with the finance directors describing their point of view. The main perspective is that, giving disclosure to the market (to the investors), the costs of equity will be reduced, but only until "*good-practice level of communication has been reached*". This last affirmation is justified by the almost absence of effect. This perspective conducts to a couple of remarks: the companies are recognized as an open company and the release of information also give credibility and trust to investors.

Lin *et al.* (2007) analyze the relationship between transparency and the informativeness of accounting earnings, using a sample of listed firms on the Taiwan market, for the period between 2003 and 2004. The results are not consensual, as a measure to study the transparency is not

always the same. The transparency of Taiwan market is measured by the ranking Information Transparency and Disclosure Ranking System (ITDRS), and the results show a reduction of the level of information of accounting earnings. However, using another proxy for the information transparency, the long-term investments, the results are an augment in earning, for the ones with more transparency. These results suggest that the ITDRS is not a good proxy for financial transparency.

Other empirical study focused on financial transparency is from Ding *et al.* (2008). The authors analyze the Baltic region and compare it with Nordic countries, relevant because of their recognized improvements in transaction efficiency and transparency. They analyze 63 firms of Baltic States of Estonia, Latvia and Lithuania and compared them with 58 firms from Nordic countries (Denmark, Finland and Sweden). They use two proxies of financial transparency: the first one is regulated by the Generally Accepted Accounting Principles (GAAP) disclosures and the second one, in a broader sense, the voluntarily supplied disclosures on corporate governance and ownership characteristics. The main conclusion achieved in the comparison between the two regions is that Baltic countries have a lower level of financial transparency than the Nordic ones, as was predicted by the authors. The second measure is negatively related with the stock price volatility in the Baltic case. In Nordic countries, the first and second measure is both negatively related with volatility. These two conclusions could be interpreted as follows: in the first case, relating the price with the importance of financial transparency, there is a reduction of stock price volatility with more transparency; in the second case, with an increase of financial transparency and also with more divulgation about ownership and governance, the price volatility will reduce. The Baltic investors are only interested in financial information, but in Nordic countries the release of information towards governance and ownership, will leave signs to the market to proceed on a buying or selling decision.

2.2 Determinants of transparency

Typically, financial disclosures are related to several firm-specific variables, such as the size of the company, capital intensity, firm performance and profitability, their auditors rating, whether the firms are or not listed outside the country, equity offer, leverage, the number of analysts following the company, and other determinants that could be related with the level of disclosure of the listed companies in a stock market exchange. Healy and Palepu (2001), for example, considered that there are six capital market reasons influencing the managers' disclosure decisions: capital market transactions, corporate control contests, stock compensation, litigation, property costs and

management talent signalizing. In the next pages, the extant literature will be investigated, with revision of all these aspects that could influence the information transparency.

In the next pages, a set of variables that could influence transparency are enumerated and analyzed.

2.2.1 Capital Intensity

According to the literature, it is expected a positive relationship between information transparency and capital intensity. Indeed, several empirical studies confirm this expectation, such as the ones of Belkaoui and Karpik (1989) and Leuz and Verrecchia (2000). The former study shows that more visible firms have, generally, greater capital intensity. There are two common proxies used to measure the capital intensity: the ratio of the gross fixed assets over the sales (Belkaoui and Karpik, 1989) and the long-term assets scaled by total assets (Ding *et al*., 2008).

2.2.2 Analysts

In what concerns the analysts, it is expected a positive relationship between the firm's disclosure and, consequently, their information transparency, and the number of analysts that follow the firms' news.

Lang and Lundholm (1996) found that information transparency and the number of analysts that track the firm are positively associated, suggesting that this association will turn around, because with higher disclosure, the analysts will be also more interested in the firm.

A similar conclusion was revealed by Healy *et al.* (1999). They suggest that firms disclosing big ratings of information will catch less interest from the analysts in pursue of information about the firm, concerning the pre-event period. But after disclosure increases, the analysts will treat the company as the others in the industry and follow the information in the same level.

2.2.3 Size

The firm size is considered by the literature as one of the most important variable related with the level of transparency (Lang and Lundholm, 1993). In a broad sense, disclosures voluntarily revealed are positively related with firm size, which means that the bigger the companies, the higher the level of disclosure. A big company is more visible then a smaller one and have more information available in the market. The visibility of bigger firms pressures them to behave in a more transparent way. There is an increased price per share as firm size increases. If there is a deep asymmetry in information, the eagerness of free disclosures will raise the prices once they happen.

Another reason for larger firms to disclose more information is the lower costs with the release of information. Indeed, it could be assumed that they had to produce that information just for managers' decisions (Singhvi and Desai, 1971).

Hope (2003) uses size as a control variable, like several prior studies. His empirical research stands on the 1993 Market Value of Equity in order to measure the size of the company. This variable was also used by the author to proxy for the manager's incentives. The author confirms prior studies' evidence of a positive relation between this variable and the release of information.

Watts and Zimmerman (1978) emphasize the firm size as an important characteristic to the level of disclosure, mentioned that the magnitude of the reported earnings will be higher in bigger firms. In addition, they find that firms with higher disclosure commonly have more developed systems of information. They state that the intervention from the governments in top size firms may create costs, but disclosure will reduce them.

King *et al.* (1990) argue that disclosure will create an effect in the size of the company, based on the transactions costs. The higher the firm size, the higher will be the information disclosure, given the higher incentives to acquire private information. Specifically, the annual report could be seen as a source, inclusive, for competitors. A small firm is likely to disclose less because it can create disadvantages face their competitors.

Several authors, such as Lang and Lundholm (1996), Botosan and Plumlee (2002) and Taylor *et al.* (2008), found evidence that disclosure scores are related to firm size. The costs of disclosure will be higher in small companies. The interest of media in major corporations is higher and, consequently, the disclosure costs will be lower. In these studies, the proxy used in order to measure the size of the companies was the logarithm of the total assets, in accordance with the studies of Allen and Rachim (1996), Ding *et al.* (2008), Lopes and Rodrigues (2006), Taylor *et al.* (2008) and Cho *et al.* (2010).

2.2.4 Profitability

Several studies have documented a positive relation between the disclosure level and the profitability of the firm. Roberts (1992) concludes that the performance of the economy is positively related with information disclosure and social responsibility. The firms will increase the disclosure with the expectation of performance improvement. According to Armitage and Marston (2008), more information provided to the market improves the knowledge of the manager endowment to cause a better performance, maintains the share price and even decreases the cost of raising capital. The transparency depends on the firms' rate of return: when it is low, the

managers disclose less to cover the skidding in their accountings; when the information is more transparent, with a higher return rate managers want to show their good results.

Several researches supported this topic. Lang and Lundholm (1993) examined the AIMR disclosure scores and found a positive relation between them and the firm's performance. The same conclusion was reached by Singhvi and Desai (1971) for their univariate test. However, for the multivariate test, this determinant appears to be non-significant. It might be that when profitability is tested alone or when tested with other variables, a case in what that influence may not show.

Healy *et al.* (1999), based on a sample of 97 firms and collecting the AIMR disclosure scores, conclude that better performance is related with better voluntary disclosures. For the firm control variable (performance), they use contemporaneous earnings, although the variable does not capture all the market adjustment of the expected cash-flows. The relation mentioned behind, a positive influence between performance and transparency will lead to constant revisions from the expectations of the future cash-flows in the market and will reduce the spread.

However, two years later, Healy and Palepu (2001) document a possible ambiguity in some empirical work done previously (Healy *et al.* 1999). To justify this fact, Healy and Palepu (2001, p. 431) refer that "*absence of a reliable model of the relation between performance and disclosure*". The consideration about the timing of changes in disclosure and the direction of causality are also valid critic, according the authors. If firms have higher disclosure when firm has positive results, the interest from the investors will increase. They are interested in the good performance and in the maximization of the company's value, more than in the transparency of the firm. Therefore, high profits will persuade managers to disclose more, because they will be more motivated. With better results the information is more detailed to prolong the good managers moment and protect their position and remuneration. The opposite is also applied, the managers disclose less when the results are weak.

2.2.5 Leverage

Modigliani and Miller (1963), Merton (1974) and Galai and Masulis (1975), among others, suggest that leverage will decrease with a capital emission. As a consequence of the debt fiscal advantage, the share price will decrease. In addition, the debt risk decreases and the wealthy will pass from the shareholders to the bondholders.

Branco (2006) studies both the corporate social responsibility and social responsibility disclosure, based on a sample of listed firms on Euronext Lisbon (EL) as well as on Portuguese

banks. Globally, the author does not find evidence of a significant relationship between leverage and disclosure.

According Roberts (1992), the creditors' power, in the role of stakeholders, depends on the degree the company relies on its debt financing.

However, the results concerning the relationship between information disclosure and leverage are not consensual. Although some authors have found a positive relationship between the two variables (Choi, 1999; García-Ayuso and Larrinaga, 2003; Purushotaman *et al.*, 2000; Roberts, 1992 and Taylor *et al.*, 2008), others found a negative relation (Belkaoui and Karpik, 1989 and Chow and Wong-Boren, 1987). Thus, the signal of the leverage variable is ambiguous. This ambiguity was analyzed by Purushothaman *et al.* (2000). They point that the leverage could leave to spread information in different ways because firms with higher levels of leverage will be nearest to their creditors, having different ways of divulging social responsibility.

Usually, the leverage variable is measured by the ratio of total debt/total assets, as it is possible to see in the studies of Belkaoui and Karpik (1989), Depoers (2000), Branco (2006) and Ding *et al.* (2008), among others.

2.2.6 Audits

Audits, ascertain the reliability of information, providing assurance to investors that financial statements present the firm's financial and economy situation in a fair and valid way. The fact that stock prices react to the announcements of earnings could indicate that investors assume that the financial information given by audits is reliable (Healy and Palepu, 2001).

Several studies suggest that to decrease the risk of litigation and to protect their name, auditors will supply higher-quality audits (for example, Singhvi and Desai, 1971 and Hope *et al.*, 2008). It is expected that, the better the quality of audits, the higher the transparency of the firm.

However, the evidence is not consensual. Singhvi and Desai (1971) show that companies audit by the "Big Eight" auditing firms are more transparent than the others.

The audits indicator is a measure of the reliability of financial accounting disclosures, distinct, as a source, from the share of the total value audited in a country (Bushman *et al.*, 2004). The most common proxies to measure this variable are the "Big 4", "Big 5", "Big 6" and "Big 8" (Hope, 2003; Ding *et al.*, 2008; Hope *et al.*, 2008 and Bushman *et al*., 2004).

Recently, Ding *et al.* (2008) used the "Big 4"[3] proxy to measure the quality of audits, founding positive significant results for CIFAR.

2.2.7 Equity Offer

The extant literature generally suggests that firms with equity offers have more incentive to disclose information than the firms without them. The suggestion made by Healy and Palepu (1993) is that managers with the concern of equity are aware that is very important to the issuer to create a good impression in the investors. The level of disclosure could be seen as a firm's forward scenario, concerning equity and debt offers or even the acquisition of another company in a stock market operation. Therefore, investors need information from the firm to make a good forecast of the prospective investment.

Lang and Lundholm (1997) document a significant increase in divulgations by the firms on the six months before a equity offer, particularly when managers have issues needing some discretion. Healy *et al*. (1999), conclude that companies with high ratings from the analysts have an atypical elevated frequency of successive public debt offers.

2.2.8 Other Determinants

Several studies have documented a positive relation between voluntary disclosure and firm size, financing needs, or firms' performance. There are several measures of performance, such as the ownership dispersion and the fact that the firm is or not listed on foreign exchanges.

Healy *et al.* (1999) found a positive relationship between disclosure level and some firm-specific characteristics, such as institutional ownership, performance, analysts following and stock liquidity.

Belkaoui and Karpik (1989) hypothesize that firms disclose social information on perceived social performance, economic performance, political visibility (size hypothesis) and contracting and monitoring costs (debt equity hypothesis). Inside these major general aspects, several determinants are distributed (leverage, dividends to unrestricted retained earnings, size, capital-intensity ratio, systematic risk, accounting return on assets and stock price return).

In the present concept of transparency, it could not be ignored the fact that the location of a firm could generate differences in their transparency. Based in a sample of 30 countries for the year of 2001, Ding *et al.* (2007) conclude that country-level differences cause diversity in disclosure.

[3] BIG 4 are constituted with the audit companies: PricewaterhouseCoopers, Deloitte Touche, Ernest & Young and KPMG.

Hope (2003) studies the firm's disclosure among 22 countries. He analyzes the effects of the level of annual report disclosure and the degree of enforcement of accounting standards on the precision of analysts' financial forecasts. The transparency of the annual reports revealed by firms is positively related with the analysts forecasts (thus, the quality of audits). There are several variations in the requirements concerning disclosure on a country-level. Hail and Leuz (2009) find a negative relationship between the cost of equity capital across countries and corporate disclosure. In addition, the results show lower levels of information asymmetry and a reduction on the equity risk premium. They found that listed firms in the US stock exchanges have lower costs of capital, in about 70 to 120 basis points.

Bushman *et al.* (2004) document a negative relation between transparency and the extent of state-owned enterprises. The proxy used by the authors was the share of country-level output supplied by state-owned enterprises (SOE). Countries with bigger investment in SOE have more elevated ratings.

Several studies suggest that complex institutional factors influence financial disclosure quality. For example, Ball *et al.* (2000) observe that companies on the common law, such as the U.K. and U.S. firms, trust on the public shareholders and creditors for financing. Countries with code law, usually, have companies that rely on managers, banks, employees and governments as a resource for capital.

Branco (2006) incorporates the information disclosed in the social responsibility disclosure (SDR) and the corporate social responsibility (CSR). He analyzes the impact of Internet on the company's SDR. This study provides further knowledge about Portuguese situation concerning SDR. Disclosure was analyzed according several items – environment, human resources, products and customers and community involvement. Analyzing the influences in disclosure, a series of determinants are revealed, namely quoting, international experience, size, media exposure, consumer proximity, environmental sensitivity, profitability and leverage. The results show a significant relationship between total SDR and the following variables: media exposure, size and international experience (the last at 10% level). The coefficients on leverage and profitability were not statistically significant.

Lopes and Rodrigues (2006) analysed the variables that could cause a change in disclosure. Considering the changes in Portuguese accounting, with the adoption of International Accounting Standards (IAS) after 2005 the authors analyzed the determinants from the companies which are closer to the disclosure requirements of the IAS. The authors found that size, type of auditor, listing

status and economic sector are significantly correlated with disclosure. However, they find no significant coefficients for corporate governance and the financing structure variables.

In this context, it will be determined the transparency of the Portuguese listed firms on EL using the following variables: size, profitability, country, leverage, audits and equity offers.

Table 1 presents a synthesis of the main results obtained in the studies analyzed before, concerning the variables cited in this session.

Table 1: Results of previous studies on disclosure

Determinant	Authors	Country	Findings
Size	Singhvi and Desai (1971)	United States	+
	Watts and Zimmerman (1978)	United States	+
	Allen and Rachim (1996)	Australia	+
	Botosan and Plumlee (2002)	United States	+
	Branco (2006)	Portugal	+
	Lang and Lundholm (1996)	United States	+
	Hope (2003)	22 countries[4]	+
	Lopes and Rodrigues (2006)	Portugal	+
	Ding *et al.* (2008)	Baltic and Nordic Region	+
	Cho *et al.* (2010)	United States	+
Leverage	Chow and Wong-Boren (1987)	Mexico	-
	Belkaoui and Karpik (1989)	United States	-
	Branco (2006)	Portugal	-
	Roberts (1992)	United States	+
	Choi (1999)	Korea, Rep.	+
	Purushotaman *et al.* (2000)	Singapore	+
	García-Ayuso and Larrinaga (2003)	Spain	+
Profitability	Singhvi and Desai (1971)	United States	+/-
	Roberts (1992)	United States	+
	Lang and Lundholm (1993)	United States	+
	Healy *et al.* (1999)	AIMR	+
Audits	Singhvi and Desai (1971)	United States	+
	Hope (2003)	22 Countries	-
	Bushman *et al.* (2004)	46 countries[5]	+
	Ding *et al.* (2008)	Baltic and Nordic Region	+
	Hope *et al*. (2008)	14 countries[6]	+
Equity Offer	Lang and Lundholm (1997)	United States	+
	Healy *et al.* (1999)	AIMR	+

(+) significantly correlated, (-) non-significantly correlated, +/- ambiguous

[4] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, United Kingdom and United States.

[5] Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Finland, France, Germany, Greece, Hong Kong, India, Ireland, Israel, Italy, Japan, Kenya, Korea, Luxembourg, Malaysia, Mexico, Netherlands, Nigeria, New Zealand, Norway, Pakistan, Peru, Philippines, Portugal, Singapore, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom, United States, Uruguay, Venezuela, Zimbabwe.

[6] Australia, Denmark, Hong Kong, India, Malaysia, Netherlands, Norway, Norway, Singapore, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States.

2.3 Stock price Volatility and transparency

The implications of transparency in the economy are broadly documented in the literature. The stock price volatility is one of the best documented. The relationship between transparency and volatility is negative, which means that with an increase of disclosure the stock price volatility will be smoother. This relation could be justified by several reasons. Firstly, the information asymmetry, corresponding to a reduced spread of disclosure, decreases with more transparency and therefore allows some smoothing of the stock price volatility. Secondly, if the investors know are regularly informed of the situation of the company, the impact of company news about its performance will decrease- the behaviour of investors will be less "nervous". Finally, with more transparency the value of a company will be more consensual for the investors, thus the volatility will be reduced.

A number of studies investigated the link between disclosure and their impact on share prices. The impact on prices can be small, being the dispersion reduced, or it might cause constant changes in the stock prices, handing to high volatility.

There is a general agreement that the quality of disclosure and transparency could diminish the firms' stock price volatility what can motivate companies to disclose more information.

For instance, Bushee and Noe (2000) document a higher volatility in small companies and justify it with a "corporate disclosure", which is measured by the ratings of AIMR. A corporate disclosure is more appellative for investors with more aggressive strategies and that will lead to more volatility. In this empirical research, they stated that not only the aggressive investors tend to magnify and detract the price quicker, but also the institutional investors with large portfolios have a propensity to invest in more transparent firms. Moreover, higher quality in disclosure is more likely to reduce volatility of future stock return, with the appeal to long term investors. This effect is compensated with higher disclosure ratings which are negatively linked to future stock return on volatility. This leads to the conclusion that smooth behaviour on the stock price decreases the firms' cost of capital.

Leuz and Verrechia (2000) find that German firms' principles are accepted, in terms of accounting from German to USA, in what could be defined as an increase of disclosure.

Lee and Chung (1998) analyzed 54 small listed firms in the Korean Stock Market, based on stocks' daily closing prices and turnovers, for the period from 1991 to 1993. The authors test empirically the effect of open limit order book on the stock market. Lee and Chung (1998, p. 28-29) formulate the hypothesis "... *if the open limit order book had no effect on stock prices, there would be no differences in variance of automated and non-automated stock returns. If any differences are*

found, it is evident that the open limit order book can change stock market volatility". The results show no differences in the mean returns, so, the authors conclude that open limit order book reduces stock market volatility. Furthermore, if the disclosure is correct and fast, there will be a smoothing of volatility in the stock prices, which leads to a more efficient market with fair prices. Consequently, the liquidity of stock markets will increase.

Baumann and Nier (2004) explore the financial sector, through the analysis of 591 banks, from 1993 to 2000. They found a negative effect from disclosure on the volatility, consistent with other studies, such as the ones of Lee and Chung (1998) and Bushee and Noe (2000). To measure the disclosure, the authors created an index similar to CIFAR, but more shaped to bank disclosure information. The volatility itself is a source to evaluate the uncertainty in the financial markets and the consequences in the economy of disclosure.

Frutos and Manzano (2005), using a two-stage model trading, compare a transparent market with an obscure market. The trades of transparency made after the first stage are analyzed. The differences reported in the strategy have a larger impact in the opaque market than in transparent market, which results in more volatile prices, generates price dispersion and decreases the price efficiency.

Looking from the perspective of the value and glamour stocks earning announcements as well as the consequences on the stock prices, La Porta *et al.* (1997) reveal that post-formation earnings announcement returns are superior for valuable stocks than for glamour stocks, in the US stock market, for the period between 1971 and 1993.

As it is possible to see through the empirical studies analyzed so far, globally, with more transparency, the asymmetry in the investors' information is reduced, and, consequently, the stock price will be less volatile.

2.4 Control Variables for Stock price volatility

Next, it is presented the variables explain the volatility of the stock price, namely the dividend yield, market-to-book, profitability, leverage, size and ownership.

2.4.1 Dividend Yield

The dividend payout ratio may signalize the quality of the firm and thus can be associated with low volatility. The higher the dividend yield, the lower will be the risk. Consequently, the expected sign for this variable is negative. Indeed, previous empirical researches find out a significant and negative relationship between Dividend Yield and Stock Price volatility such as Allen

and Rachim (1996) for the Australian stock market. However, other studies find no evidence of a significant value for the coefficient on dividend payout, such as the study of Ding *et al*. (2008), for the Baltic and Nordic Regions and the one of Bauman and Nier (2004) that analyzed 31 countries[7].

2.4.2 Market-to-Book

Stock price volatility is also influenced by the market-to-book ratio (MB), used as a proxy for growth predictions, which is associated with more volatility in the future (Fama and French, 1992; La Porta *et al.,* 1997 and Berkman *et al.,* 2002). Hence, the expected signal for this coefficient is positive. However, Ding *et al.* (2008) find ambiguous results. The coefficient on MB ratio is not statistically significant for the Baltic market results and for S&Ps indices, in the Nordic region. However, it is significant for CIFAR indices in the Nordic region.

2.4.3 Profitability

The empirical evidence support the hypothesis that investors are more sensitive to information disclosure when it contains good news about firms performance than when the news are considered bad from the investors point of view, leading to a quicker and larger stock price reaction.

Supporting this hypothesis, Baumman and Nier (2004), study several banks reports across countries, and find a significant relationship between profitability and stock price volatility, suggesting that the better the firm firms performance, the lower will be the stock price volatility. More recently, Ding *et al.* (2008) find a significant relation between the two variables for the Baltic region and for S&Ps index on Nordic countries, and a non significant value for the CIFAR- based disclosure variable.

2.4.4 Leverage

According Modigliani and Miller (1963), more leveraged in the firm's financial structure is associated with a higher volatility on the equity returns. Consequently, higher debts to equity ratio will growth the return volatility. Thus, the expected sign for this coefficient is positive.

However, the empirical results are not consensual. Although Allen and Rachim (1996), Baumann and Nier (2004) and Fama and French (1992) found a significant value for leverage

[7] Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Finland, France, Germany, Hong Kong, Indonesia, Ireland, Israel, Italy, Japan, Republic of Korea, Malaysia, Netherlands, Norway, Poland, Portugal, Singapore, Spain, Sweden, Switzerland, Taiwan, Turkey, United Kingdom and United States.

variable, Berkman *et al.* (2002) and Ding *et al.* (2008) found no significant relationship between firms leverage and the stock price volatility.

2.4.5 Size

Larger firms are more likely to have less stock price elasticity than smaller ones. Thus, smaller size companies are more sensitive to stock price volatility. A concept was raised in the early 70's and described as "thinness" as "*being inversely related to the size of the market for the equity shares of a particular corporation*" (Cohen *et al*., p. 733). The market that is "thin" can increase the volatility and the cost of capital for individual firms.

Several prior studies have documented a negative and significant relation between size and the volatility of stock prices, investors will trust more on firms with bigger size and the reaction in terms of price dispersion will be less significant. Several empirical studies found a negative and significant relation between the variables, such as the case of Allen and Rachim (1996), Baumann and Nier (2004), Yumei *et al.* (2008) and Ding *et al.* (2008), but only for the Nordic Region.

Table 2 presents a summary of the main results obtained by the studies focused on stock price volatility, and cited before.

Table 2: Results of previous studies on the volatility price literature

Variables	Authors	Country	Findings
Transparency	La Porta *et al.* (1997)	US	✓
	Lee and Chung (1998)	Korea	✓
	Leuz and Verrecchia (2000)	German	✓
	Bauman and Nier (2004)	31 countries[8]	✓
	Bushee and Noe (2000)		✓
	Ding *et al.* (2008)	Baltic Region	✓
	"	Nordic Region	+/-
			✓
Size	Allen and Rachim (1996)	Australia	✓
	Baumann and Nier (2004)	31 countries	✓
	Ding *et al.* (2008)	Baltic Region	_
	"	Nordic Region	✓
	Yumei *et al.* (2008)	China	✓
Leverage	Fama and French (1992)	United States	✓
	Allen and Rachim (1996)	Australia	✓
	Berkman *et al.* (2002)	United States	_
	Baumann and Nier (2004)	31 countries	✓
	Ding *et al.* (2008)	Baltic and Nordic Region	_
Profitability	Baumann and Nier (2004)	31 countries	✓
	Ding *et al.* (2008)	Baltic Region	✓
	"	Nordic Region	+/-
Market-to-book	Fama and French (1992)	United States	✓
	Ding *et al.* (2008)	Baltic Region	_
	"	Nordic Region	+/-
Dividend Yield	Allen and Rachim (1996)	Australia	✓
	Bauman and Nier (2004)	31 countries	_
	Ding *et al.* (2008)	Baltic and Nordic Region	_

(✓) significantly correlated, (_) non-significantly correlated, +/- ambiguous

2.5 Ownership Structure

The demand for information in the stock markets could reveal an aspect that might be important in the transparency of a company, i.e., the ownership structure. This demand for the structure of the companies' ownership generates the need of good quality accounting information by the diversified ownership (Ding *et al*., 2007).

Previous empirical studies found a negative association between disclosure and ownership concentration (Fan and Wong, 2002; Arcay and Vázquez, 2005; Lakhal, 2007 and Laidroo, 2009).

[8] Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Finland, France, Germany, Hong Kong, Indonesia, Ireland, Israel, Italy, Japan, Republic of Korea, Malaysia, Netherlands, Norway, Poland, Portugal, Singapore, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom and United States.

When the ownership structure is highly concentrated, there is less demand of information, which is released not so often and with lower quality.

In Portugal, firms have a concentrated ownership. Even in EL, there are several firms that were familiar and small, and during the process of growth and expansion became listed. But the first owners stayed with a big share from the company and hold a huge influence in the decisions, because of their participation in the equity and their voting rights. Thus, it seems right to expect that firms with more concentrated ownership will have less transparency.

Table 3 summarizes the studies mentioned before, that analyze the variable ownership and its relation with transparency and disclosure.

Table 3: Overview of Empirical Studies on Association between Ownership and Disclosure

Ownership structure variable	Study	Country	Study sign
Ownership concentration	Arcay and Vázquez (2005)	Spain	-
	Lakhal (2007)	France	-
	Fan and Wong (2002)	East Asia	-
	Laidro (2009)	Baltic (Tallinn, Riga and Vilnius Stock Exchange)	-

(-) non-significantly correlated

3. Methodology and data

3.1 Hypotheses

This study focused on two main questions, which are the following:

- Is the transparency dependent from a set of variables that are characteristics from a company?
- Is the economic situation modified by the existent transparency?

In order to answer these questions, two hypotheses were formulated. The first hypothesis relates transparency and firm-specific variables, and was formulated as follows:

H_1: The transparency is positively associated with size, country, leverage, profitability, auditor or equity offer, and negatively associated with ownership

The second one relates transparency and volatility and was formulated in the following manner:

H_2: The companies with bigger transparency scores would have lower volatility.

In order to test these hypotheses, it is developed the methodology presented now.

3.2 Methodology

In order to analyze the phenomenon of the transparency, it is chosen the proxies to measure transparency. Consequently, and focused on the explanation of transparency and volatility, it is considered two different models: the first explaining transparency and the relevant factors associated with this phenomenon and the second one examining the relationship between stock price volatility and some variables associated with it.

3.2.1 The disclosure indices

According Botosan (1997), annual reports are good proxies for the spread of information, because annual report levels are positively correlated with the amount of disclosure provided via other media (Lang and Lundholm, 1993). This connection between the transparency indices and disclosure is documented by Singhvi and Desai (1971) and Lang and Lundholm (1993), with both studies revealing strong and corroborative results.

Nevertheless, it is quite difficult to measure the disclosure level because the application of the index could be slightly subjective. Also, every item is not necessarily relevant to all companies. Raffournier (1995) stated that there is a framework of indices being not relevant.

To measure transparency, it is calculated two indices, based on two measures used in prior studies: the first one based on the Center for International Financial Analysis & Research (CIFAR) and the second one based in Standard & Poor's Transparency & Disclosure index (S&Ps). These indices are based on the information provided in firms' annual reports to investors, for the fiscal year 2008.

The two indices show different aspects concerning the disclosure and transparency from two features: one is more concerned with the accounting and the other more concerned with the ownership structure[9]. On one hand, the CIFAR measure enhances items specifically regulated. For example, in accounting, as the International Financial Reporting Standards (IFRS) or GAAP, it includes general information, items from the income statement, balance sheet and cash flow, accounting standards, stock data, governance data and special items. On the other hand, S&Ps reveal the contribution to transparency from ownership structure, such as financial stakeholder rights, the Board structure and the process of placing.

The measures are dichotomous, or the information is disclosed in the firm's Annual Reports (case 1), or the information is not provided (case 0) and in a small cases, when the disclosure of information is irrelevant and is not provided (case Excluded). The Appendix 1 gives a more specific explanation of the disclosure scores. The items take in consideration amounts to a total of 174 for each company. Hence, it was constructed only analysing the annual reports a total of 15.834 singular data for the transparency measures. It is used the annual reports, but there other sources that firms use to disclose information, for instance, the communication with analysts of material information and to the press.

The total points obtained by a specific firm are computed, for the two indices, by the following formulas:

$$SCOREc_{ij} = \sum_{i=1}^{78} CIFAR_j \quad [1]$$

$$SCOREsep_{ij} = \sum_{i=1}^{96} S\&P_j \quad [2]$$

[9] To understand better this index consult "Standard & Poor's Corporate Governance Scores- Criteria and Definitions", July, 2002, MacGraw-Hill.

The sums of $SCOREc$, measuring CIFAR, and $SCOREsep$, measuring S&Ps, go through the total number of points awarded to the firm j for all the questions i, with $i = 1, \dots, 78$ for CIFAR and $i = 1, \dots, 96$ for S&Ps based index. Appendixes 1, 2 and 3 explain the procedure of scoring.

3.2.2 Transparency Model

According prior literature, it is expected that transparency will be explained by the following variables:

$$Transparency = f(Portugal, Size, Leverage, Profitability, Auditor, Equity\ Offer)$$

Consequently, the following regression model is estimated:

$$Transparency = \beta_0 + \beta_1 Portugal + \beta_2 Size + \beta_3 Leverage + \beta_4 Profitability + \beta_5 Auditor + \beta_6 Equity\ Offer + \mu_i \quad [3]$$

where:

Transparency	=	Disclosure score based on one of two indices (CIFAR or S&Ps index);
Portugal	=	Dummy variable that takes the value one if the company is Portuguese and zero otherwise;
Size	=	Logarithm of total assets (in Euros);
Leverage	=	Ratio of total debt over total assets;
Profitability	=	Return on Equity (ROE) of the firm divided by ROE of the industry;
Auditor	=	Dummy variable that take the value one if the company is audited by a Big 4 firm and zero otherwise;
Equity Offer	=	Dummy variable that take the value one if the company arranged an equity offer during 2008, and zero otherwise;
μ_i	=	Error term.

The variable ownership structure is included in the model to understand the variables that explain the release of information and consequently the transparency. The relation between the ownership and transparency is not yet well documented. Ownership is measured by the aggregation of the voting rights of the three biggest shareholders of the company. In a few cases, when that information is not available, it is assumed that each voting right corresponds to a percentage of ownership from the shareholders. The data from this variable was found in the

annual reports from the companies, in 2008, or, alternatively, on Euronext website or on the Amadeus Database.

3.2.3 Volatility Model

In what concerns the volatility, it is examined whether transparency and stock price volatility are related with each other. In addition, it is considered a set of control variables.

$$Volatility = f(Transparency, Z)$$

The volatility model can be formulated as follows:

$$Volatility = \beta_0 + \beta_1 Transparency + \beta_2 Size + \beta_3 Leverage + \beta_4 Profitability + \beta_5 MB + \beta_6 DYield + IndFeffects + \mu_i \quad [4]$$

where:

Volatility	=	Standard deviation of share prices calculated from end-of-week share prices;
MB	=	End-of-the-year capitalization divided by book value of total common equity;
DYield	=	Dividend Yield , dividend per share divided by year-end stock price;
IndFeffects	=	Fixed Effects for eight industry sectors;
μ_i	=	Error term.

In what concerns the Portuguese market, the ROE of the industry was obtained in *Banco de Portugal* and was classified according the Portuguese Classification of the Economic Activities (CAE) sectors. For the robustness reasons, the Profitability was measured only with the ROE of firm, and the results were quite similar in the two methodologies, so the conclusions do not change. Consequently, it was decide to use the industry ROE mean adjusted.

3.2 The Sample

In order to analyse the transparency of the Portuguese market, and to compare it with the Belgian market, it is used a sample of non-financial listed companies on the Euronext Lisbon (EL) and on the Euronext Brussels (EB), respectively. It is excluded the financial firms because those companies should obey to strict legal requirements regarding their finance (Gaud *et al.*, 2003). The

firms chosen in this sample are presented in Appendix 4 and 5, and data was collected on the 2008 annual reports.

Belgian firms could provide a good match because they are also listed in Euronext N.V. and have a similar size to matching with the Portuguese capital market. The presence of both countries in Euronext will create similar accounting standards, namely because the adoption of IFRS in 2005.

Firstly, was tried to obtain the annual reports from the firm's websites. When some kind of information was not found, particularly, the annual individual reports, was tried to obtain the data from the website of the Portuguese committee of the securities market, Comissão do Mercado de Valores Mobiliários (CMVM).

The Portuguese final sample consists of 45 non-financial firms (of the 56 listed on EL). For all the sample firms, the fiscal year 2008 finish in 31 of December, except the football clubs, which finishes at 30 of June, so, for these last cases, it is analyzed the annual report from the season 2007/2008.

The Portuguese sample was matched with the Belgium sample, considering the firms industry and size. The Belgian market is bigger than the Portuguese one, presenting a higher volume of traders, as well as more investors. The total listed firms on EB amounts to 229. Removing the financial firms, there are already 171 listed firms. Thus, the number of non-financial listed firms is much bigger than the 45 firms listed on EL.

To create a proportion in these two markets, is used the matching method. From the 229 firms listed on the EB, only 171 are non-financial firms, listed only on EB. After removing the non-financial firms, as well as the ones simultaneously listed on other stock Exchanges, the sample was grouped according the *Industry* Classification Benchmark (ICB)[10] industry. Finally, it is obtained the Belgian matched sample, according the size of the companies.

Four of the Belgian firms, in the Basic Materials, Consumer Goods and Utilities sectors were used twice as a matching pair for some of the Portuguese firms because of the lack of Belgian companies, namely in what concerns the industry and size criteria.

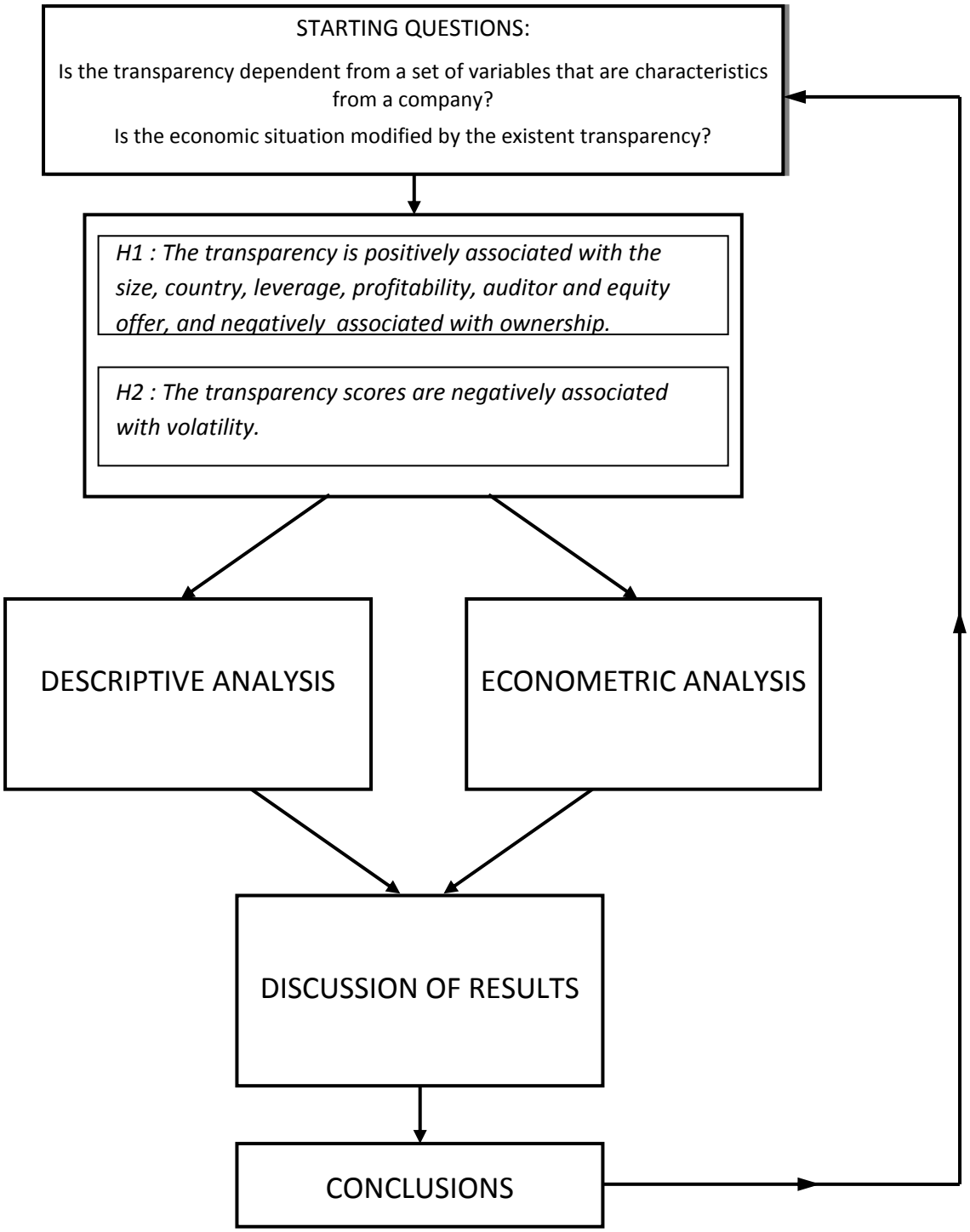
It was adopted a similar approach to the one of Ding *et al.* (2008), who analyze a sample of 63 Baltic firms, and compare them with 58 Nordic firms (Denmark, Finland and Sweden). Consequently, it is possible to compare these results and their results.

To apply the methodology, it is used the econometric programme *Eviews* 7.0.

[10] Euronext classify the firms in ICB industries, such as Oil & Gas, Basic Materials, Industrials, Consumer Goods, Health Care, Consumer Services, Telecommunications, Utilities, Financials and Technology.

The Figure 1 presents, schematically, a summary of the objective of this dissertation, as well as the hypotheses formulated and the methodology used to study that goal.

Figure 1: Thesis approach



3.3 The Stock Exchange and the conjuncture of the Portuguese and Belgian Markets

3.3.1 Portuguese Stock Exchange

In Portugal, since middle Age, the increasing of trade transactions induced a wider contact between merchants. That presence in Lisbon of so many merchant different countries attracted foreign merchant brokers, speaking different languages and therefore facilitating themselves the transactions of goods and capital.

Despite several attempts before the eighteenth century, Lisbon Brokers had their activity regulated only since the 1st of January 1769, the day the Lisbon Stock Exchange (LSE) was installed. Nearly a century later, the Porto Stock Exchange (PSE) was created.

During more than three quarters of the twentieth century, the Portuguese securities market had a low activity, the vast majority of securities, including shares, not being subject to negotiation. Stock prices were very rarely recorded in the bulletin of the Stock Exchange, with the exception of the shares of large companies involved in the financial sector.

From the 60's until the early 70's, the highest growth of the Portuguese economy in the twentieth century allowed an increase of the capital markets, which remained particularly active from 1972 until the April Revolution. Despite an international economic recession caused by the oil shock of 1973, the worst crisis phase of the capital market in Portugal came up with the seizure of political power by the military on April 25, 1974.

On April 29, 1974, there was a heavy blow to the SEL and Porto when all operations on securities were suspended by a decision of the Committee for National Salvation. Two years after, sessions were resumed on the LSE for trading of bonds. On February 28, 1977, the operations of all securities listed on the LSE were reopened and, in 1981, sessions were resumed as well on the PSE.

A fundamental shift in the Portuguese capital market occurs in 1985, when the Finance Minister, Miguel Cadilhe, invites a number of companies to enter the Portuguese stock market, conceding a major package of tax benefits for issuers and investors.

Following this initiative, some operations began to emerge on the market, showing a new dynamism of the Stock Exchanges in Portugal. Particularly, the first public offer in Portugal appears in 1986 on the PSE and, in the same year, the first bid occurs on the LSE. Porto seizes the first privatization process in Portugal, in 1989, and, April 10, 1991, sees the publication of the Securities Code ("Sapateiro s Law"), with the transference of the Stock Exchanges of Lisbon and Porto with its assets to the respective Stock Exchange associations.

On January 4, 1999, trading in shares and shares of investment funds cease to be made in Escudos to be done in Euros. From then, any negotiation, price quotations and settlement of transactions are made in Euros.

In the same year, in December, the General Assembly of the two existing Stock Exchanges associations occurred simultaneously: the LSE Association and of Porto Derivatives Exchange Association. The merger was decided as well the transformation into one limited company. The new company took the designation of “Bolsa de Valores de Lisboa e Porto (BVLP) - Sociedade Gestora de Mercados Regulamentados, SA”. This company became responsible for managing the money and regulated derivatives markets, as well as of other non-regulated markets when properly authorized for their activity.

Early in March 2000, there was a change in the regulation of money market with the introduction of new trade rules, better suited to the market requirements. A group of laws were revoked, among them the fundamental law on the organization and operation of the Securities Market Securities Code, commonly known as "Sapateiro’s Law”.

On June 13, 2001, the signing of the Memorandum of Understanding was held between BVLP and Euronext NV and, on December 13, an agreement was achieved on the financial terms of the "merger." By the end of January, the shareholders agreed unanimously with the conditions of the merger between Euronext NV and BVLP.

On February 6, 2002, BVLP changes officially its name to Euronext Lisbon. And, on September 2, 2002, members of Euronext Lisbon became capable of exchanging, in the spot market, all the products quoted on the markets Euronext Paris, Amsterdam and Brussels. Finally, it was created the NYSE Euronext, with the merger of Euronext NV and NYSE.

3.3.2 Brussels Stock Exchange

The Brussels Stock Exchange was founded in Brussels, Belgium, in the early nineteenth century by Napoleonic decree in 1801. In this initial system, ruled by French administration, the brokers had the monopoly of the deal of government securities.

The big development in industry and economy in the middle of the nineteenth century (1851) raised a stronger and bigger bourse. A new building was constructed by the necessity of larger space and to accommodate the new needs. The new exchange was finalized in 1874 and replaced in the site of Récollets Convent. From 1867 to 1935 there were no laws in respect to market regulation. This free competition was over in 1935 with the consequences of the Great Depression and a set of laws regulating the market.

The Financial Transactions and Markets Act was legislated in 1990 to modernize and make competitiveness on the stock market. On September 22, 2000, the Brussels Stock Exchange was renamed Euronext Brussels and merged with Paris Bourse, Lisbon Stock Exchange and the stock exchanges of Amsterdam, to form Euronext N.V., the first pan-European exchange for equities and derivates, with common trading and clearing of all products. BEL 20 is now the most popular index in the Brussels Stock Exchange.

3.3.3 Portuguese Evolution in 2008

The year 2008 was deeply marked by heavy losses in stock markets on a global scale. In the same context of economic and financial damage, the Portuguese economy was also struck by a very low activity growth (0.5%). The global economic slowdown and the situation of turbulence in the international financial markets and the rising prices of raw materials had a huge impact in a weak economy like the Portuguese.

The inflation rate followed the international trend, rising from 2.4% in 2007 to 2.7% in 2008. In the labour market, which reacted with some lag to the other realities, it was happened a cutback in the unemployment rate, prowling to 8.1% in 2007 and dropping to 7.8% in 2008. However the fall in productivity was starting to feel.

The Portuguese stock market was also severely affected. The principal index, PSI-20, depreciated 51% during the year, the worst performance of a set of 200 global indices followed by Euronext.

In twelve months, the market capitalization from PSI 20 reduced significantly. The 20 firms quoted in this index, in late 2007, had a market capitalization from 94 300 millions of Euros and in late 2008 had lost 46 200 millions of Euros, to less than 48 100 millions of Euros.

3.3.4 Belgium Evolution in 2008

The financial and economic crisis lived in Europe and US had also consequences in Belgium. After a slow growth in the three quarters of the year 2008, the last quarter was marked by a negative growth[11].

The inflation rate decreased 0.3% from 2007 to 2008 (2.1% and 1.8%, respectively). Simultaneously the unemployment rate decreased 0.6% from the 8.1% in 2007 to 7.5% in 2008. The indicator GDP (real growth rate) decreases 2 points (3% in 2007 and 2.8% in 2008)[12].

[11] Belgium – 2008 Article IV Consultations: Concluding Statement of the Mission (December, 2008).
[12] The data is collected in CIA World Factbook.

Belgium dealt with a crisis in 2008 and 2009 – the so called 2008-2009 Belgian Financial Crisis. Two of the largest banks had financial problems, namely Fortis and Dexia. The problems were amplified by the international conjuncture and Belgium had to sell their share part of Fortis to the French bank BNP Paribas.

Because of this crisis in the middle of 2008, BEL-20 stock market lost more than 20% of its value in the second week of October and, in 25th day of the same month, BEL-20 lost 60%. The performance of 10.000 Euros from BEL-20 was in the beginning of 2008 almost 10.000 Euros and dropped in the end of the year to less than 6.000 Euros.

This particular conjuncture recommends, of course, strong caution in validation of the subsequent results and conclusions.

3.3.5 Adoption of the Accounting Harmonization

Before 2005, European countries used their own domestic accounting standards. In that year, the International Accounting Standards Board (IASB) issued the implementation of IFRS that resulted in the application of a set of financial reporting standards within Europe.

This transition was enhanced by the Recommendation for Additional Guidance Regarding the Transition to IFRS by the Committee of European Securities Regulators (CESR), whose purpose was to create a comparable divulgation of the company's information and to identify the goals of the transaction process.

In Portugal, the market regulators, namely CMVM[13] emitted a document concerning the obligation of a quarterly financial statement of disclosure, after the 2005 recommendation.

Belgium is an example of the continental model of accounting and is vastly cited in the literature. The accounting is based in the Commercial Code and is characterized for their creditors' protection, a financial reporting accordingly with the tax regulation, which gives a special attention to the balance sheet and uses the companies' provisions to smooth earnings (Haverals, 2007).

Before 2005, Belgium already allowed the use of the International Accounting Standards by their companies, even before the decision of the European Union. For that reason, the decision of mandatory disclosure in 2005 was not drastic for this country (Renders and Gaeremynck, 2007).

[13] The Portuguese Securities Market Commission, also known by its initials "CMVM", was established in April 1991 with the task of supervising and regulating securities and other financial instruments markets (traditionally known as "stock markets"), as well as the activity of all those who operate within said markets.

4. Empirical results

Before applying the methodology, it was estimated a descriptive analysis for the most important variable – transparency - comparing the index based scores for the two countries. The data used in the descriptive statistics and in the econometric analysis focus on the firm-level.

The descriptive statistics are examined it the next four tables and describe the means, standard deviation, correlations and the t-test for the two transparency measures and the variables selected to explain the transparency.

TABLE 4

Descriptive Statistics for disclosure indices

	PORTUGAL		BELGIUM	
	CIFAR	S_P	CIFAR	S_P
Mean	56.2	57.5	54.5	58
Median	57	59	56	58
Maximum	66	73	62	79
Minimum	39	28	41	40
Std. Dev.	5.7	9.5	5.5	8.2
Q1	54	54	52	54
Q3	59	65	58	61

	t-test for Equality of Means	
	t	*Sig (2-tailed)*
CIFAR (Portugal and Belgium)	1.988*	0.053
S&Ps (Portugal and Belgium)	0.534	0.596

*10% statistical significance

Table 4 provides the descriptive statistics for the disclosure indices for the Portuguese and the Belgium subsamples.

For Portugal, the mean of CIFAR index is 56.2, whereas for Belgium it presents a value of 54.5. In what concerns the S&Ps index, the higher mean is for Belgium, with a score of 58, whereas the Portuguese mean score is of 57.5.

The Standard Deviation gives an idea of the firm's differences concerning transparency and, in both indices, the Portuguese firm have the most discrepant scores.

In what concerns the CIFAR index, the most transparent firm re from Portugal (scored with 66), but concerning S&Ps index the better score (79) comes from a Belgium company. This result

may be helped by the new accounting standards coming strongly to the EU and making further pressure to disclose more and with higher quality the accounting.

A better score in CIFAR for Portugal and a better score in S&Ps for Belgium suggests that there are transparencies in different ranges. Consequently, it could conclude that Portuguese firms are more focuses on the spread of their accounting policies and Belgium firms are more concerned with the policies of ownership and governance.

TABLE 5

Pearson Correlation Coefficients between CIFAR and S&Ps based indices

Countries	n	Correlation
Both Portuguese and Belgium countries	90	0.4270***
Portugal	45	0.4888***
Belgium	45	0.3769***

*** 1% statistical significance

Table 5 presents the correlation between the CIFAR and S&Ps indices for the Portuguese and Belgium markets. For both countries, the correlation between the two indices is of about 43%, significant at 1% level. Ding *et al.* (2008) found a correlation of 60%. The results of relatively high correlation (approximately 49%) between the transparency indices, and statically significant at 1% level for Portugal, is a good sign that transparency is explained by these factors.

However, for the Belgium stock market, the result is lower (38% approximately), what could be a concern. Ding *et al.* (2008) found correlation of 72.7% and 60.6%, respectively for the Baltic and Nordic markets, which denote that, for these countries, the indices are more likely to measuring transparency.

The descriptive statistic of the independent variables is showed in Table 6.

TABLE 6

Descriptive Statistics for independent variables

	BELGIUM AND PORTUGAL MARKETS		PORTUGAL MARKET		BELGIUM MARKET	
Variable	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
SIZE	8.5482	0.7425	8.6081	0.7321	8.4883	0.7562
LEVERAGE	0.6049	0.6735	0.7419	0.8995	0.4680	0.2647
PROFITABILITY	-27.5797	278.3622	1.1852	8.6101	-56.3446	393.6566
AUDITOR	0.7556	0.4322	0.7333	0.4472	0.7778	0.4204
EQUITY_OFFER	0.0111	0.1054	0	0	0.0222	0.1491
OWNERSHIP	0.6216	0.2125	0.6401	0.2035	0.6030	0.2219

The size of the Portuguese and Belgium firms are quite similar, being the size mean of respectively 8.61 and 8.49. The leverage is higher for the Portuguese firms (0.74) than for Belgian firms (0.47).

Concerning the profitability, both markets, considered together, present a negative profitability, with a significant number of companies presenting a negative value for the earnings before extraordinary items. Indeed, 2008 was a year characterized by a financial and economy crisis.

The Belgian market has 77.78% of the sample companies audited by one of the BIG 4, while the Portuguese market has 73.33% of the companies with the BIG 4 audit.

Furthermore, equity offer was an absent and rare event, respective by the Portuguese and the Belgium sample (2%).

Finally, both Portuguese and Belgian firms present a high level of ownership concentration with a Belgian mean of 60.3% and a Portuguese mean of 64%.

Comparing these results with the ones of Ding *et al.* (2008), it is observed that, globally, both the Baltic and the Nordic firms' present higher size, have lower leverage, higher profitability, higher percentage of auditors from BIG 4, and similar number of equity offers. The exception is the fact that Nordic firms have a lower level of ownership concentration, around 47.68%

Table 7 provides the correlation coefficients between the transparency indices, the Portuguese coefficient which is a dummy variable that take, the value one if the Portugal and zero otherwise as well as among the control variables. All the variables include the two samples and are computed as discussed earlier.

TABLE 7

Correlation Coefficients of variables for both countries together

	CIFAR	S_P	PT	SIZE	LEVERAGE	PROFITABILTY	AUDITOR	EQUITY_OFFER
PT	0.1329	-0.0195						
SIZE	***0.3166	***0.3811	-0.0213					
LEVERAGE	0.0579	-0.0610	0.1619	0.1308				
PROFITABILITY	0.0757	0.0788	0.0971	-0.1413	-0.0209			
AUDITOR	**0.2327	***0.2921	-0.0380	***0.4183	-0.1376	-0.0543		
EQUITY_OFFER	0.1255	-0.0215	-0.0992	*0.1928	0.0162	0.0127	0.0603	
OWNERSHIP	-0.0773	-0.0219	0.1287	-0.1079	0.0174	**0.2401	-0.0846	0.1643

*** at 1% statistical significance
** at 5% statistical significance
* at 10% statistical significance

Both the CIFAR and S&Ps indices present a non significant correlation with PT.

Disclosure correlates positively and significantly with the size of firm and the auditor quality. In what concerns the correlation coefficients among the control variables, the results show a positive and significant correlation between SIZE and both AUDITOR and EQUITY_OFFER, as well as a positive correlation between PROFITABILITY and OWNERSHIP, at 5% level. However, these coefficients are not very high (always below 50%), so it does not appear to be sufficiently large to cause concern about multicollinearity problems. All the other coefficients present not statistically significant.

Next, it is presented the results of the regression models presented in the methodology session.

4.1 Transparency

Table 8 reports the results of the ordinary least square (OLS) regression models, analyzing the relation between disclosure levels (measured by the CIFAR and S&Ps indices) and the firm – specific variable, in order to study the information transparency. The inclusion of variables explaining transparency was performed regarding previous literature, specially the study of Ding *et al.* (2008). The dependent variables are: PORTUGAL, SIZE, LEVERAGE, PROFITABILITY, AUDITOR, EQUITY OFFER and OWNERSHIP. The Table exhibits two models: one includes the variable OWNERSHIP and the other does not. The t-statistics are based on White Test (1980).

TABLE 8

Regression Results- Determinants of disclosure levels

	CIFAR				S&Ps			
	Model 1		Model 2		Model 1		Model 2	
Variables	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.
Intercept	36.2301	0.0000	38.6337	0.0000	18.6738	0,0942	17.9955	0.1082
Portugal	1.5516	0.1744	1.6990	0.1447	-0.2927	0,8639	-0.3343	0.1082
Size	1.9874	0.0180	1.9081	0.0229	4.4460	0,0013	4.4684	0.0014
Leverage	0.1729	0.8228	0.1784	0.8181	-1.0966	0,5755	-1.0982	0.5765
Profitability	0.0021	0.0000	0.0026	0.0000	0.0044	0,0000	0.0043	0.0000
Auditor	1.7328	0.1967	1.6792	0.2203	2.8028	0,2475	2.8179	0.2457
Equity Offer	4.5379	0.0006	5.3569	0.0013	-8.7018	0,0000	-9.0155	0.0003
Ownership			-2.8278	0.2204			0.7979	0.8416
Adj. R^2	0.1510		0.0894		0.1437		0.1336	
N	90		90		90		90	

Considering the Model 1 for the CIFAR index, all the coefficients have a positive sign, which is the expected sign, except for OWNERSHIP. However, only coefficients on the SIZE, PROFITABILITY and EQUITY OFFER are statistically significant. In model 2, with the inclusion of the variable OWNERSHIP, the variable that explain the disclosure in a significant way stay the same: SIZE, PROFITABILITY and EQUITY OFFER. These results are consistent with previous studies, such a Singhvi and Desai (1971), Branco (2006), Lopes and Rodrigues (2006); Ding *et al.* (2008) and Cho *et al.* (2010).

The results suggest that firms that present higher level of transparency, tend to be ones of larger size, higher profitability and with equity offers events.

Having more profitability will increase the transparency in 0.002 and 0.004, in mean and approximately, in the score CIFAR and S&Ps, respectively, which is a small change in the level of transparency, but in the analyze proves to be significant.

Regarding the SIZE of the firm, it could be seen that bigger firms will have better scores of transparency. Size will generate an augment in the score of CIFAR of 1.99, approximately, for the first model and 1.91, approximately, for the second model.

The EQUITY OFFERS are also statistically significant explaining the transparency. Pertaining to the measure CIFAR, there is a positive relation translated in an augment of 4.25 points, in mean and approximately, in the score.

It is apparent from the value of the adjusted R^2, reported in Table 8 (15% and 8.9%), that a substantial variation in the transparency level of CIFAR is unexplained by both models.

Using the S&Ps score for transparency the regression fit slightly weaker than for the CIFAR index in the Model 1 (0.14 against 0.15), but stronger in Model 2 (0.13 against 0.09). Once more, the variables that can explain the transparency are SIZE, PROFITABILITY and EQUITY OFFER, with all the other coefficients presenting a no significant value.

However, contradicting the conclusions of CIFAR, the sign of the EQUITY OFFER is negatively related with transparency in the S&Ps measure. The same results were obtained by Ding *et al.* (2008).

The Portuguese dummy is positive for CIFAR index and negative for S&Ps index, suggesting that, considering the control variables, Portuguese firms are more transparent then the Belgian ones in the accounting policies and less transparent in what concerns their ownership and the governance features. However, the coefficients are not significant.

The adjusted R^2 for CIFAR models is very similar to the ones of Ding *et al.* (2008), which is relatively small. For the S&Ps models, the adjusted R^2 is high in the Ding *et al.* (2008) study; approximately 70% of the variable transparency is measured by the global model. However, in the study model, this measure is much smaller (14.37% and 13.36%, Model 1 and 2, respectively). For both cases the regressions are not strong enough to explain the transparency.

Ding *et al.* (2008) found evidence that Baltic firms are less transparent then the Nordic ones, concerning the subjects of ownership and governance (S&Ps index). Although their models results are not quite different from the results here presented, the main differences are that the equity offers does not explain the transparency, contrary to the dissertation results, and, for the CIFAR index, they found evidence that auditor and leverage influences positively and significantly the transparency for both models, and for the Model 2, respectively.

Having presented the results related with transparency, now the results associated with volatility are exposed.

4.2 Volatility

To deeply understand the transparency, it is necessary to investigate the consequences of that transparency in the economy. According Leuz and Verrecchia (2000), when the disclosure increases in the company, the cost of capital reduction in the firm is one of the consequences. The immediate consequence in the change on stock market is the sudden variation of the prices,

specifically the change on stock price volatility. This last consideration supports the option, in this work, of stock price volatility to investigate the consequences of transparency on the economy.

The model regression [4] is run in order to analyze the relationship between stock price volatility on the disclosure (TRANSPARENCY) and a set of control variables (SIZE, LEVERAGE, PROFITABILITY, MARKET-TO-BOOK and DIVIDEND YIELD), considering the Portuguese and Belgian samples separately, in order to compare the two Euronext markets. The results are illustrated on Table 9. Panel A presents the results for the Portuguese sample and Panel B for the Belgian sample.

TABLE 9

Regression results – Effect of disclosure on stock price volatility

Panel A: Stock price volatility regressed on disclosure metric and control variable for the Portuguese sample

	CIFAR- based disclosure variable		S&Ps- based disclosure variable	
Variables	*Coef.*	*Sig.*	*Coef.*	*Sig.*
Transparency	-0.0040	0.8906	0.0009	0.9687
Size	1.0716	0.0003	1.0568	0.0010
Leverage	0.1049	0.5550	0.1132	0.5566
Profitability	0.0587	0.5437	0.0125	0.4837
Market-to-Book	0.0587	0.2965	0.0571	0.3024
Dividend Yield	-8.9523	0.2333	-9.0057	0.2310
Intercept	-7.6632	0.0044	-7.8163	0.0016
Adj. R^2	0.2726		0.2721	
N	45		45	

Panel B: Stock price volatility regressed on disclosure metric and control variable for the Belgium

	CIFAR- based disclosure variable		S&Ps- based disclosure variable	
Variables	*Coef.*	*Sig.*	*Coef.*	*Sig.*
Transparency	-0.6641	0.1815	-0.4755	0.1691
Size	1.8587	0.6727	3.4848	0.4559
Leverage	11.7928	0.3275	5.3431	0.6463
Profitability	0.0267	0.4152	0.0250	0.4406
Market-to-Book	0.0319	0.4792	0.0289	0.5175
Dividend Yield	53.4223	0.1161	64.7040	0.5557
Intercept	13.6295	0.7600	-9.1703	0.8142
Adj. R^2	0.7858		0.7865	
N	45		45	

Industry Fixed effects included in the models

Two models are computed, one using the transparency index CIFAR and the other using the Standard & Poor's index. The models consider the industry fixed effects that control the volatility changes due to the type of industry.

The p-value associated with each regression coefficient represents the one-tailed probability level for the differences in the volatility and the several independent variables. For the Portuguese sample (Panel A), the only variable that contributes to explain the stock price volatility is the SIZE, in a positive way. An increase of one unity in the size of the company causes an increase of 1.07 and 1.06 (CIFAR and S&Ps respectively) in the stock price volatility. For the SIZE variable, the results are consistent with the ones of Fama and French (1992), Allen and Rachim (1996), Baumann and Nier (2004) and Ding *et al.* (2008), for the Nordic sample. Beyond the size influence, Ding *et al.* (2008) find some evidence that profitability affects positively the stock price volatility.

All the other variables, TRANSPARENCY, LEVERAGE, PROFITABILITY, MARKET-TO-BOOK and DIVIDEND YIELD are not statistically significant.

Having in mind the main objective of this study, the CIFAR and S&Ps indices are not good measures to explain the changes in the stock price. The non significant coefficient leads to the conclusion that in Portugal the stock prices volatility is not influenced by the transparency of the company, i.e., the level of disclosure, in the annual reports, observed by the investors. Consequently, it does not influence the investors' decision of buying or selling. It can be said that there is one type of Portuguese dominant investor: a passive investor who, in the presence of information from the annual reports, do not change his decision of buy or sell shares, leading to an exiguous influence on the volatility of prices.

For the Belgium sample (Panel B), it is possible to see that this model has a greater explanatory power than for the Portuguese samples, with adjusted R^2 of about 0.79, against 0.27, in the previous country.

However, none of the coefficient presents a statistically significant value, thus, individually, none of these variables can explain the stock price volatility.

The high value of the adjusted R^2 for the Belgium sample, which shows that about 78% of the model, explains the volatility, led to the investigation of the econometric problem – multicollinearity. However, analyzing the correlations matrix, there is no proving that multicollinearity is present in the model. The high value could be explained by the introduction of the industry fixed effects, which could be in fact related with the volatility.

Overall, the results do not give support for the hypothesis that transparency scores are negative associated with the stock prices volatility, contrary to the results of Ding *et al.* (2008), for the S&Ps index.

As the only measure disclosure in annual reports, it does not necessarily capture all aspects of firms' disclosure practices, which motivate to do robustness tests, in order to obvious this limitation.

4. 3 Robustness Tests

For robustness reasons, the effect of quarterly reports on stock price volatility will now be presented. After analyzing the results of Table 9, it was set a new possibility for understanding transparency. The variable used to measure transparency stood quite unfitted to stock price volatility. So far, it is used annual reports to determine the transparency. However, concerning the study of the sensitivity of the stock price, it is more suitable to increase the frequency of disclosure, such as the reliable information of quarterly reports. Several authors use the quarterly reports as a proxy of disclosure, such as Botosan and Plumlee (2002), Healy *et al.* (1999), Lang and Lundholm (1993) and Alves and Santos (2005).

Consequently, it is considered a model of volatility similar to the model [4], formulated as follows:

$$Volatility = \beta_0 + \beta_1 TranspT1 + \beta_2 TranspS1 + \beta_3 TranspT3 + \beta_4 TranspA + \beta_5 Size + \beta_6 Leverage + \beta_7 Profit + \beta_8 Markettobook + \beta_9 DYield + IndFeffects + \mu_i \quad [5]$$

where:

Volatility	=	Standard deviation of share prices calculated from end-of-week share prices;
TranspT1	=	CIFAR-based index with the use of first Quarterly Report;
TranspS1	=	CIFAR-based index with the use of first Half-Year Report;
TranspT3	=	CIFAR-based index with the use of third Quarterly Report;
TranspA	=	CIFAR-based index with the use of Annual Report.

The analysis is conducted for Portugal, the central concern of this work, and the transparency index used is CIFAR. The use of CIFAR is justified because of the good descriptive results of the Portuguese sample with this index, better than the one supplied by S&Ps. The regression model follows the econometric procedures of the volatility model [4].

The information of the Quarterly Reports was downloaded in the CMVM website or, alternatively, in the companies' website when it was not available in the first site. The number of firms is now reduced from 45 to 42, because of the Quarterly reports presented. The company "EDP Renováveis" is listed only in 2008 and the First Quarterly Report does not exist. The company "F. Ramada" released only the Third Quarter Report and the "Portugal Telecom" the First Quarterly Report. For these reasons, the information was processed with some missing values.

Table 10 shows the regression [5] results of the effects of quarterly disclosure on stock price volatility.

TABLE 10

Regression results – Effect of Quarterly Reports disclosure on stock price volatility

CIFAR- based disclosure variable		
Variables	*Coef.*	*Sig.*
TranspT1	-0.1731	0.2397
TranspS1	-0.0344	0.0486
TranspT3	0.2005	0.1770
TranspA	-0.0110	0.6931
Size	1.2795	0.0001
Leverage	0.1466	0.4381
Profitability	0.0091	0.6105
Market-to-Book	0.1524	0.0243
Dividend Yield	-17.4694	0.0410
Intercept	-8.3583	0.0510
Adj. R^2	0.3885	
N	42	

Comparing these results with the ones of Table 9, these models present greater explanatory power than the previous one (the adjusted R^2 is about 0.39, against 0.37 on Table 9).

In the transparency measures only the half-year report (TRANSPS1) is statistical significant at 5 percent level. Three of the four measures arose statistically non significant. Analysing only the sign, it is possible to witness the opposite relation between the variables explored, only inexistent in the Third Quarter information.

The results are not consistent with the ones of Alves and Santos (2005) for the Portuguese market. They found a significant relation between first and third quarterly reports and the stock price volatility. This asymmetry of results could be explained by the methodology chosen. Their

announcements were done on press releases and through immediate announcements of legally required financial statements.

In what concerns the control variables, the results show that stock price volatility can be positively explained by SIZE and MB, and negatively by the DIVIDEND YIELD. On Table 9, only the SIZE coefficient was statistically significant. This means that these variables influence the stock price and their changes.

Analysing the information collected, the variation of the CIFAR score is higher for the quarterly reports than for the annual reports.

Globally, the main conclusions are unchanged. The transparency for the Portuguese companies does not influence much the investors in the moment of buying or selling shares. The lack of reaction in presence of transparency could indicate that the information is not important to the market, with some passiveness in the presence of new information, the investors do not understand the information conveyed to the market or maybe the information was already known before the release of the report.

5. Conclusion

This study provides empirical evidence on the determinants of information disclosure and the effects of disclosure on stock price volatility for Portuguese and Belgian stock markets, using a sample of the non-financial listed firms in these two stock markets.

The main contribution of this study was to find some determinants of the firm's disclosure policy of Portuguese and Belgian companies. Using several items from their annual reports, the non-financial listed companies on the EL and EB, were evaluated according two based indices (the CIFAR and the S&Ps indices), judging if the firm was transparent or if some of the information was maintained private. The countries considered in the work were chosen namely because of their presence in Euronext N.V. thus, it was possible for their accountings to be similar. Moreover, the adoption of the IFRS in Europe during the year 2005 created an accounting harmonization. Because the two countries are limited by the size of their capital markets, it helps to create a size and industry matched sample.

The transparency was measured by two indices, based on the disclosure on the annual reports. The methodological procedures to analyse the transparency were chosen taking into account the characteristics of the two indices measure. The number of items used in the index and the deepness of the information is an option that is necessary to be scrutinized. A disclosure index, with fewer items[14] gives more important and more general information, but could be in part incomplete. An index with more items and consequently more complete, could distort the importance of some items that, in fact, are not so important. In other words, the reduced importance in some disclosure will be levelled with the high value of some disclosure. The authors that use an index measure, such as Raffournier (1995), reach to general conclusions that are not quite different from this study.

According the descriptive statistics, the results suggest that while Portuguese firms follow the disclosure concerning their accounting policies, the Belgium firms pursue better policies of ownership and governance. Indeed, forward tests strengthen this conclusion, suggesting that the two countries give different importance of the disclosure type. Portugal has better score in CIFAR based index and Belgium has a greater score on S&Ps based index. The result leads to the conclusion that Portuguese firms are more concern about disclosure from the regulation of

[14] Raffournier (1995) used a measure with only 30 items that covers more general information for a sample of Swiss companies. Instead several items around the same type of disclosure it is used a more synthetic item.

accounting and Belgian firms are more transparent in terms of ownership structure. However, as the result is not statistical significant, the findings have to be taken with caution.

Part of the disclosure has been found significantly related to size, profitability and equity offer, giving some support to hypothesis one. This result is in agreement with the one of Lang and Lundholm (1997), Healy *et al.* (1999), Botosan and Plumlee (2002) and Ding *et al.* (2008), among others.

This study investigated also the consequences of transparency in the market. Previous literature has found significantly relations between the changes on the stock prices and transparency. Tests were conducted to analyze what could change the stock prices volatility, with transparency as an independent variable and with a set of control variables: such as size, leverage, profitability, market-to-book, dividend yield and control variables for industry fixed effects.

In the two countries, it was found no statistical significance between the transparency measures CIFAR and Standard and Poor's based indices, present in the Annual Reports of the firms, and the volatility present in the stock price. Consequently, it was not found evidence supporting hypothesis 2. Nevertheless, results suggest that firms with more information disclose on key items of disclosure show lower measures of stock volatility than firms that disclose less information, with the only exception of S&Ps in Portugal. However, these conclusions must be interpreted with care, since the results presented are conditioned by the effectiveness of the model. For the Portuguese sample, only the size of the companies seems to be significantly related with the volatility, which suggests that the stock price volatility will increase with the size of the companies.

The periodicity on disclosure is an important feature in the analysis. This study was conducted based on the annual reports. However, the quarterly information gives more detailed information across the year, what could improve the empirical results related with stock price volatility, the dependent variable considered in order to measure the economic consequences. Indeed, some authors used quarterly announcements or other reports published by the companies[15]. Consequently, for robustness reasons, it was chosen to consider the quarterly announcements, for Portuguese firms, to understand the relationship between disclosure and stock price volatility. However, the obtained results using quarterly information results were similar to the previous one: no statistical significance in the first, third and last quarterly reports. The half

[15] La Porta *et al.* (1997) use quarterly earnings announcements for the US stock market exchange and Botosan and Plumlee (2001) use not only the annual reports but also the quarterly and the other published reports and investors relations from 4705 firm-observations integrated in the AIMR Reports.

year report is the only coefficient of transparency measure which had statistical significance in stock price volatility, suggesting that this release of information is quite important for the investors.

Globally, it is important to interpret the results carefully, because this study was conducted for the year 2008, a period characterized by a deep financial crisis in the two countries, and in a global scale as well, which can distort the results. Volatility is an expressive example of this possible distortion, measured by the end of the week stock prices, because it suffered a big depreciation since the beginning of January until the final of December. In addition, the number of equity offers (zero for the Portuguese market and one for the Belgian market) could be the consequence of this financial bad year. However, Ding *et al.* (2008) conducted a similar study for the Baltic region, in a period of market growth (the year of 2004) and find similar results, which give some reliability for this study in what concerns the main conclusions.

Several findings expressed before may be limited to the accounting standards that have place in Europe. The reports divulged by the companies could be considered as an obligation and not so much a managerial decision. The mandatory disclosure could be the reflex of unwillingness of voluntary disclosure information. This limitation is also recognized by previous financial literature, such as Raffournier (1995), who states that this subject was more accurate for old annual reports, where there is no mandatory disclosure. From the accounting standards used after 2005, the transparency scores could be inflated in order to fulfil the mandatory disclosure, which is a concern. Consequently, a more scrutinized index to measure the transparency may be better to embrace particular points not included in standard procedures and could make the difference.

Finally, some issues still not analysed in this dissertation could be suggested, maybe leading to future researches, whose contributions may prove beneficial to the development of research related to disclosure and transparency. A possible path of future research might be the split of disclosure between mandatory disclosure and voluntary disclosure and analyse it separately. Other feature might be the analysis of the disclosure in the same period, but more fragmented, for instance, considering the quarterly reports for the two markets. That will better capture the markets response, namely the price variance. Finally, the last suggestion could be extended to the other index used - Standard & Poor's index - which, as seen before, will better accommodate the disclosures of Belgium.

References

Akerlof, G. (1970): "The market for 'lemons': quality uncertainty and the market mechanism", *Quarterly Journal of Economics*, 90: 629–650.

Allen, D. E. and Rachim, V. S. (1996): "Dividend policy and stock price volatility: Australian evidence"*, Applied Financial Economics*, 6: 175-188.

Alves, C. F. and Santos, F.T. (2005): "The informativeness of quarterly financial reporting: the Portuguese case", *FEP Working Papers*.

Ang, J. and Brau, J. (2002): "Firm transparency and the costs of going public", *The Journal of Financial Research*, 21 (1): 1-17.

Arcay, B. M. R. and Vázquez, M. M. F. (2005): "Corporate characteristics, governance rules and the extent of voluntary disclosure in Spain.", *Advances in Accounting,* 21: 299-331.

Armitage, S. and Marston, C. (2008): "Corporate disclosure, cost of capital and reputation: Evidence from finance directors", *The British Accounting Review*, 40: 314-336.

Asquith, P. and Mullins, D. (1983): "The impact of initiating dividend payments on shareholder wealth", *The Journal of Business*, 56 (1): 77-96.

Ball, R.; Kothari, S. P. and Robin, A. (2000): "The effect of international institutional factors on properties of accounting earnings", *Journal of Accounting and Economics,* 29(1): 1-51.

Barry, C. B. and Brown, S. J. (1985): "Differential Information and Security Market Equilibrium", *The Journal of Financial and Quantitative Analysis*, 20(4): 407-422.

Bauman, U. and Nier, E. (2004): "Disclosure, volatility, and transparency: an empirical investigation into the value of bank disclosure", *FRBNY Economic Policy Review*, 31-45.

Beatty, R. P. and Ritter, J. R. (1986): "Investment banking, reputation, and the underpricing of initial public offerings", *Journal of Financial Economics*, 15: 213-232.

Belkaoui, A. and Karpik, P. G. (1989): "Determinants of the corporate decision to disclose social information", *Accounting, Auditing & Accountability Journal*, 2(1), 36–51.

Berkman, H.; Bradbury, M.; Hancock, P. and Innes, C. (2002): "Derivative financial instrument use in Australia", *Accounting and Finance*, 42: 97-109.

Bhardwaj, A.; Dietz, J. and Beamish, P. (2007): "Host country cultural influences on foreign direct investment", *Management International Review*, 47(1):29-50.

Botosan, C. A. (1997): "Disclosure level and the cost of equity capital", *The Accounting Review*, 72 (3): 323-349.

Botosan, C. A. (2006): "Disclosure and the cost of capital: what do we know?", *Accounting and Business Research,*36: 31-40.

Botosan, C.A. and Plumlee, M.A. (2002):"A re-examination of disclosure level and the expected cost of equity capital", *Journal of Accounting Research*, 41: 21-40.

Bradshaw, M.; Bushee, B. and Miller, G. (2004): "Accounting choice, home bias, and US investment in non-US firms.", *Journal of Accounting Research*, 42(5): 795-841.

Branco, M. C. (2006): "Essays on corporate social responsibility and disclosure", Doctoral Thesis, *Universidade do Minho*.

Bushee, B. J. and Noe, C. F. (2000): "Corporate disclosure practices, institutional investors, and stock return volatility", *Journal of Accounting Research,* 38 (3, Supplement): 171-208.

Bushman, R. M.; Piotroski, J. D. and Smith, A. J. (2004): "What determines corporate transparency?", *Journal of Accounting Research*, 42(2): 207-252.

Clarkson, P.; Guedes, J. and Thompson, R. (1996): "On the diversification, observability, and measurement of estimation risk", *Journal of Financial and Quantitative Analysis,* 31: 69-84.

Cho, C. H.; Roberts, R. W. and Patten, D. M. (2010): "The language of US corporate environmental disclosure", *Accounting, Organizations and Society*, 30: 1-13.

Choi, J. S. (1999): "An investigation of the initial voluntary environmental disclosures made in Korean semi-annual financial reports", *Pacific Accounting Review*, 11 (1): 73-102.

Chow, C. and Wong-Boren, A. (1987): "Voluntary financial disclosure by Mexican corporations", *The Accounting Review*, 62: 533-541.

Coles, J.L.; Loewenstein, U. and Suay, J. (1995): "On equilibrium pricing under parameter uncertainty", *Journal of Financial and Quantitative analysis*, 30(3): 347-364.

Collins, D. W. and Salatka (1993): "Noisy accounting earnings signals and earnings response coefficients: the case of foreign currency accounting", *Contemporary Accounting Research*, 10(1): 119-159.

Depoers, F. (2000): "A cost-benefit study of voluntary disclosure: some empirical evidence from French listed companies", *The European Accounting Review*, 9(2): 245-263.

Diamond, D.W. (1985): "Optimal release of information by firms", *Journal of Finance,* 40(4): 1071-1094.

Diamond, D. and Verrecchia, R. (1991): "Disclosure, liquidity, and the cost of capital", *Journal of Finance*, 46: 1325–1360.

Ding, Y.; Hope, O. and Schadewitz, H. (2008): “Firm-level transparency in the former east bloc: empirical evidence from the Baltic region”, *SSRN working papers,* available at: papers.ssrn.com/sol3/papers.cfm?abstract_id=1098193.

Ding, Y.; Hope, O.; Jeanjean, T. and Stolowy, H. (2007): “Differences between domestic accounting standards and IAS: measurement, determinants and implications”, *Journal of Accounting and Public Policy’*, 26: 1-38.

Elliott, R. and Jacobson, P. (1994): "Costs and benefits of business information disclosure", *Accounting Horizons*, 8 (4): 80-96.

Fama, E. F. and French, K. R. (1992): “The cross-section of expected stock returns”, *The Journal of Finance*, 47 (2): 427-465.

Fan, J. P. H. and Wong, T. J. (2002): “Corporate ownership structure and the informativeness of accounting earnings in east Asia”, *SSRN Working papers* Available at: http://ssrn.com/abstract=243226v.

Frutos, M. A. and Manzano, C. (2005): “Trade disclosure and price dispersion”, *Journal of Financial Markets*, 8: 183-216.

Galai, D. and Masulis, R. (1975): “The option pricing model and the risk factor of stock”, *Journal of Financial Economics*, 3: 53-81.

García-Ayuso and Laringa, C. (2003): “Environmental disclosure in Spain: corporate characteristics and media exposure”, *Spanish Journal of Finance and Accounting*, 115: 184-214.

Gaud, P.; Jani, E.; Hoesli, M. and Bender, A. (2003): “The capital structure of Swiss companies: an empirical analysis using dynamic panel data”, *Fame- International Centre for Financial Asset Management and Engineering*, *Research paper*.

Gunasekarage, A. and Power, D. (2002): “The post-announcement performance of dividend-changing companies: the dividend-signalling hypothesis revisited”, *Accounting and Finance*, 42: 131-151.

Hail, L. and Leuz, C. (2009): “Cost of capital effects and changes in growth expectations around U.S. cross-listings”, *Journal of Financial Economics*, 93: 428-454.

Handa, P. and Linn, S. C. (1993): “Arbitrage pricing with estimation risk”, *The Journal of Financial and Quantitative Analysis*, 28(1): 81-100.

Haverals, Jacqueline (2007): “IAS/IFRS in Belgium: quantitative analysis of the impact on the tax burden of companies”, *Journal of International Accounting, Auditing and Taxation*, 16: 69-89.

Healy, P. and Palepu, K. (2001): "Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature", *Journal of Accounting and Economics,* 31(1-3): 405-440.

Healy, P.; Hutton, A. and Palepu, K. (1999): "Stock performance and intermediation changes surrounding sustained increases in disclosure", *Contemporary Accounting Research*, 16: 485–520.

Healy, P. and Palepu, K. (1993): "The effect of firms' financial disclosure strategies on stock prices", *Accounting Horizons*, 7: 1-11.

Hiraki, T.; Ito, A. and Kuroki, F. (2003): "Investors Familiarity and Home Bias: Japanese Evidence", *Asic-Pacific Financial Markets*, 10: 281-300.

Holthausen, R. and Verrecchia R. (1988): "The effect of sequential information releases on the variance of price changes in an intertemporal multi-asset market", *Journal of Accounting Research*, 26(1): 82-106.

Hope, O. K.; Kang, T.; Thomas, W. and Yoo, Y. (2008): "Impact of excess auditor remuneration on cost of equity capital around the world", *Journal of Accounting Auditing and Finance*, 1-47.

Hope, O. K. (2003): "Disclosure practices, enforcement of accounting standards and analysts' forecast accuracy: an international study", *Journal of Accounting Research,* 41(2): 235-272.

Kim, O. (1993): "Disagreements among Shareholders over a Firm's Disclosure Policy", *The Journal of Finance*, 48(2): 747-760.

King, R.; Pownall, G. and Waymire, G. (1990): "Expectations adjustment via timely management forecasts: review, synthesis, and suggestions for future research", *Journal of Accounting Literature*, 9: 113-144.

Klein, R. W. and Bawa, V. S. (1976) "The effect of estimation risk on optimal portfolio choice", Journal of Financial Economics, 3(3): 215-231.

La Porta, R.; Lakonishok, J.; Shleifer, A. and Vishny, R. (1997): "Good news for value stocks: Further Evidence on Market Efficiency", *The Journal of Finance*, 52 (2): 659: 874.

Laidroo, L. (2009): "Association between ownership structure and public announcements' disclosure", *Corporate Governance: An International Review*, 17(1): 13-34.

Lakhal, F. (2007): "Voluntary disclosure and financial analysts' behaviour in France", *Université Paris XII Working Paper*.

Lang, M. and Lundholm, R. (1997): "Voluntary disclosure and equity offerings: reducing information asymmetry or hyping the stock?", *Contemporary Accounting Research*,17(4): 1-52.

Lang, M. and Lundholm, R. (1996): “Corporate disclosure policy and analyst behaviour”, *The Accounting Review*, 71(4): 467-492.

Lang, M. and Lundholm, R. (1993): “Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosure”, *Journal of Accounting Research*, 31(2): 246-271.

Lee, H. and Ryan, P. (2000): “The information content of dividend initiation and omissions: the free cash flow and dividend signalling hypothesis”, *The Journal of Research in Finance*, 3(2): 196-277.

Lee, S. and Chung, J. (1998): “The effect of market transparency volatility and liquidity in the Korean stock market”, *Review of Quantitative Finance and Accounting*, 11: 23-35.

Leuz, C. and Verrecchia, R.E., (2000): “The economic consequences of increased disclosure”, *Journal of Accounting Research,* 38 (Supplement): 91-124.

Lin, Y.; Huang, S. Y.; Chang, Y. and Tseng, C. (2007): “The relationship between information transparency and the informativeness of accounting earnings”, *The Journal of Applied Business Research*, 23(3): 23-32.

Lopes, P. T. and Rodrigues, L. L. (2006): “Accounting for financial instruments: an analysis of the determinants of disclosure in the Portuguese stock exchange”, *FEP Working Papers*.

Merton, R. (1974): “On the pricing of corporate debt: the risk structure of interest rates”, *The Journal of Finance*, 29(2):449-470.

Modigliani, F. and Miller, M. (1963): “Corporate income taxes and the cost of capital: a correction”, *The American Economic Review*, 53(3): 433-443.

Nam, D.; Arthurs, J.; Nielsen, M. and Mousa, F. (2009): “Information disclosure and IPO valuation: what kinds of information matter and is more information always better?”, *Babson College Entrepreneurship Research Conference (BCERC)*, *SSRN Working papers*, available at: papers.ssrn.com/sol3/papers.cfm?abstract_id=1348222.

Pinto, I. F. (2003): “O Impacto da divulgação dos factos relevantes no mercado de capitais Português”, *Dissertation thesis*, *Instituto Superior de Ciências do Trabalho e da Empresa*.

Price, R. (1998): "Price responsiveness of informed investors to increases in financial statement disclosure quality'', *Working paper, College of William and Mary, Williamsburg*, VA 23187-8795.

Purushothaman, M.; Tower, G.; Hancock, P. and Taplin, R. (2000): “Determinants of corporate social reporting practices of listed Singapore companies”, *Pacific Accounting Review*, 12 (2): 101-133.

Razin, A. and Sadka, E. (2007): "Corporate transparency, cream-skimming and FDI", *European Economic Review*, 51: 1263-1276.

Raffournier, B. (1995): "The determinants of voluntary financial disclosure by Swiss listed companies", *The European Accounting Review*, 4(2): 261-280.

Renders, A. and Gaeremynck, A. (2007): "The impact of legal and voluntary investors protection on the early adoption of International Financial Reporting Standards (IFRS)", *De Economist*, 155 (1): 49-72.

Roberts, R. W. (1992): "Determinants of corporate social responsibility disclosure: an application of stakeholder theory", *Accounting, Organizations and Society*, 17(6): 595-612.

Sengupta, P. (1998): "Corporate disclosure quality and the cost of debt", *The Accounting Review*, 73(4): 497-474.

Seyoum, B. (2009): An empirical analysis of the impact of corporate transparency on foreign direct investment", *The Multinational Business Review*, 17(3): 29-48.

Singhvi, S. and Desai, H. (1971): "An empirical analysis of the quality of corporate financial disclosure", *The Accounting Review*, 46: 129-138.

Skinner, D. (1994): "Why firms voluntarily disclose bad news", *Journal of Accounting Research*, 32: 38-61.

Taylor, G.; Tower, G.; Zhan, M. V. and Neilson, J. (2008): "Corporate governance determinants on Australian resource companies' financial instrument disclosure practices", *Asian Review of Accounting*, 16 (1): 56-73.

Verrecchia, R. (2001): "Essays on disclosure", *Journal of Accounting and Economics*, 32 (1-3): 97-180.

Vieira, E. and Raposo, C. (2007): "Signaling with dividend? The signaling effect of dividend change announcements: new evidence from Europe", *SSRN Working Papers,* available at http://ssrn.com/abstract=955768.

Watts, R. and Zimmerman (1978): "Towards a positive theory of the determination of accounting standards", *The Accounting Review*, 53(1): 112-134.

White, H. (1980): "A heteroskedascity - consistent covariance matrix estimator and a direct test for the heteroskedascity", *Econometrica*, 48(4): 817-838.

Welker, M. (1995): "Disclosure policy, information asymmetry and liquidity in equity markets", *Contemporary Accounting Research*, 11: 801–828.

Yumei, F.; Chunfeng, W. and Zhenming, F. (2008): "Effects of stock price volatility on listed companies' financing", *4th International Conference on Wireless Communications, Networking and Mobile Computing.*

Zhang, G. (2001): "Private information production, public disclosure, and the cost of capital: theory and implications", *Contemporary Accounting Research*, 18(2):363-384.

Appendices

Appendix 1: The measure of transparency

To provide a self-computed measure of the level of disclosure it was used the CIFAR and Standard & Poors based index.

The attribution of disclosure was binary. The evaluation is done by the following principles:

- If the company provides the information of that item or if the information is not relevant for the company is used "1" to qualify it.
- If the company does not provide the information or if the firm does not present information explaining that the item is inappropriate for the firm to report is used "0".
- If no information is provided, but the disclosure is irrelevant and there is no need to inform that it is inappropriate it is used "Excluded".

Appendix 2: List of Discretionary Items considered in CIFAR-based Index

A: General information
1-Address/Telephone/Fax/Telex
2-Product Segment
3-Geographic Segment
4-Management Information
5-Subsidiaries Information
6-Future plans/Chairman or CEO's Statement
7-Number of Employees
8-Fiscal Year-End

B: Income Statement
9-Consolidated Income Statement
10-Cost of Goods Sold
11-Complete Income Statement
12-Sales
13-Selling, General and Administrative Expenses
14-Operating Income
15-Foreign Exchange Gains/Losses
16-Extraordinary Gains/Losses
17-Income Tax Expense
18-Minority Interest
19-Net Income Reported

C: Balance Sheet
20-Complete Balance Sheet
21-Current Assets Separated from Fixed Assets
22-Current Liability Separated from LT Liability
23-Owners' Equity Separated from Liability
24-Cash and Cash Equivalents
25-Accounts Receivable
26-Inventories
27-Current Assets
28-Fixed Assets on Asset Side
29-Goodwill and Other Intangibles
30-Shareholders' Equity Changes
31-Appropriation of Retained Earnings

D: Funds flow / Cash flow
32-Cash Flow Statement
33-Complete Cash/Fund Flow Statement

E: Accounting Policies
34-Accounting Standards
35-Financial Statements Cost Basis
36-50% Long-Term Investments
37-Starting Point for Funds Statement
38-Research & Development Costs
39-Pension Costs
40-Reasons for Extraordinary Items
41-Inventory Costing Method
42-20% Long-Term Investments

(continue)

Appendix 2 (continued)

43-21-50% Long-Term Investments
44-Acquisition Method
45-Accounting for Goodwill
46-Deferred Taxes
47-Outside Manager of Pension Funds
48-Long-Term Financial Leases
49-Foreign Currency Translation Method
50-Foreign Currency Translation Gains / Losses
51-Discretionary Reserves
52-Minority Interest
53-Contingent Liabilities

F: Stockholders' Information
54-Dividend per Share
55-Earnings per Share
56-Number of Shares Outstanding
57-Multiple Shares
58-Par Value
59-Total Dividends
60-Stock Split / Dividend / Rights Issues
61-Stock Price
62-Stock Exchange Listing
63-Volume Traded
64-Diluted Earnings Per Share
65-Changes in Capital
66-Different Div. for Multiple Classes of Shares
67-EPS for Multiple Classes of Shares
68-Significant Shareholders
69-Composition of Shareholdings

G: Supplementary Information
70-Earnings per Share Numerator
71-Earnings per Share Denominator
72-Notes to Accounts
73-Disclosure of Subsequent Events
74-Remuneration of Directors and Officers
75-Research & Development Costs
76-Capital Expenditure
77-List of Board Members and Their Affiliations
78-Exports; Financial Summary

Removed from the scoring
Funds Flow Statement
Funds from Operations
Funds Definition (Replaced by Cash Flow Statement)
Quarterly/Interim Dividends (Dividends payed once a year)
Separation of Non-Equity Reserves and Retained Earnings
Total Assets Can Be Derived (Items outdated)

Appendix 3: List of Discretionary Items considered in S&Ps-based Index

Ownership Structure and Investor Relations (S&Ps Ownership)
Does the company in its annual accounts disclose?
1. The number of issued and outstanding ordinary shares disclosed?
2. The number of issued and outstanding other shares disclosed (preferred, non-voting)?
3. The par value of each ordinary share disclosed?
4. The par value of each other shares disclosed (preferred, non-voting)?
5 number of authorized but unissued & outstanding ordinary shares disclosed?
6 number of authorized but unissued & outstanding other shares disclosed?
7 par value of authorized but unissued & outstanding ordinary Shares disclosed?
8 par value of authorized but unissued & outstanding other shares disclosed?
9 top 1 shareholder?
10 top 3 shareholders?
11 top 5 shareholders?
12 top 10 shareholders?
13 description of share classes provided?
14 review of shareholders by type?
15 number and identity of shareholders holding more than 3%?
16 number and identity of shareholders holding more than 5%?
17 number and identity of shareholders holding more than 10%?
18 percentage of cross-ownership?
19 existence of a Corporate Governance Charter or Code of Best Practice?
20 Corporate Governance Charter / Code of Best Practice itself?
21 details about its Articles of Association. (e.g. changes)?
22 voting rights for each voting or non-voting share?
23 way that shareholders nominate directors to board?
24 way shareholders convene an EGM?
25 procedure for putting inquiry rights to the board?
26 procedure for putting proposals at shareholders meetings?
27 review of last shareholders meeting? (e.g. minutes)
28 calendar of important shareholders dates?

Financial Transparency & Information Disclosure (S&Ps Finance)-
Does the company in its annual accounts disclose:
1 its accounting policy?
2 the accounting standards it uses for its accounts?
3 accounts according to the local accounting standards?
4 accounts according to an internationally recognized accounting standard (IAS/US GAAP)?
5 its balance sheet according to international accounting standard (IAS/US GAAP)?
6 its income statement according to international accounting standard (IAS/US GAAP)?
7 a basic earnings forecast of any kind?
8 a detailed earnings forecast?
9 financial information on a quarterly basis?
10 a segment analysis (broken down by business line)?
11 the name of its auditing firm?
12 a reproduction of the auditors' report?
13 how much it pays in audit fees to the auditor?
14 any non-audit fees paid to auditor?
15 consolidated financial statements (or only the parent/holding co)?
16 methods of asset valuation?
17 information on method of fixed assets depreciation?
18 a list of affiliates in which it holds a minority stake?
(continue)

Appendix 3 (continued)

19 a reconciliation of its domestic accounting standards to IAS/US GAAP?
20 the ownership structure of affiliates?
21 details of the kind of business it is in?
22 details of the products or services produced/provided?
23 output in physical terms? (number of users etc.)
24 characteristics of assets employed?
25 efficiency indicators (ROA ROE etc.)
26 a discussion of corporate strategy?
27 any plans for investment in the coming year(s)?
28 detailed information about investment plans in the coming year(s)?
29 an output forecast of any kind?
30 an overview of trends in its industry?
31 its market share for any or all of its businesses?
32 a list/register of related party transactions?
33 a list/register of group transactions?

Board and Management Structure and Process (S&Ps Governance) –

Does the company in its annual accounts disclose:
1 a list of board members (names)?
2 details about directors (other than name/title)?
3 details about current employment/position of directors provided?
4 details about previous employment/positions provided?
5 when each of the directors joined the board?
6 classification of directors as an executive or an outside director?
7 a named chairman listed?
8 detail about the chairman (other than name/title)?
9 details about role of the board of directors at the company?
10 a list of matters reserved for the board?
11 a list of board committees?
12 the existence of an audit committee?
13 the names on the audit committee?
14 the existence of a remuneration/compensation committee?
15 the names on the remuneration/compensation committee)?
16 existence of a nomination committee?
17 the names on the nomination committee?
18 the existence of other internal audit functions besides the Audit Committee?
19 the existence of a strategy/investment/finance committee?
20 the number of shares in the company held by directors?
21 a review of the last board meeting? (e.g. minutes)
22 whether they provide director training?
23 the decision-making process of directors' pay?
24 the specifics of directors' pay (e.g. the salary levels etc.)?
25 the form of directors' salaries (e.g. cash, shares, etc.)?
26 the specifics on performance-related pay for directors?
27 the decision-making of managers' (not Board) pay?
28 the specifics of managers' (not on Board) pay (e.g. salary levels etc.)?
29 the form of managers' (not on Board) pay?
30 the specifics on performance-related pay for managers?
31 the list of the senior managers (not on the Board of Directors)?
32 the backgrounds of senior managers disclosed?
33 the details of the CEO's contract disclosed?
34 the number of shares held by the senior managers disclosed?
35 the number of shares held in other affiliated companies by managers?

Appendix 4: Portuguese sample Companies and their Industry Sector (ICB)

Companies	ICB
ALTRI SGPS	2000 Industrials
BENFICA	5000 Consumer Services
BRISA	2000 Industrials
CIMPOR,SGPS	2000 Industrials
COFINA,SGPS	5000 Consumer Services
COMPTA	9000 Technology
CORTICEIRA AMORIM	3000 ConsumerGoods
EDP	7000 Utilities
EDP RENOVAVEIS	7000 Utilities
ESTORIL SOL N	5000 Consumer Services
EUROPAC	1000 BasicMaterials
F.RAMA	1000 BasicMaterials
FISIPE	1000 BasicMaterials
FUT.CLUBE PORTO	5000 Consumer Services
GALP ENERGIA-NOM	0001 Oil&Gas
GLINTT	9000 Technology
IBERSOL,SGPS	5000 Consumer Services
IMOB.C GRAO PARA	2000 Industrials
IMPRESA,SGPS	5000 Consumer Services
INAPA-INV.P.GESTAO	1000 BasicMaterials
J.MARTINS,SGPS	5000 Consumer Services
LISGRAFICA	2000 Industrials
MARTIFER	2000 Industrials
MEDIA CAPITAL	5000 Consumer Services
MOTA ENGIL	2000 Industrials
NOVABASE,SGPS	9000 Technology
OREY ANTUNES ESC.	2000 Industrials
P.TELECOM	6000 Telecommunications
PAP.FERNANDES	1000 BasicMaterials
PORTUCEL	1000 BasicMaterials
REDITUS,SGPS	9000 Technology
REN	7000 Utilities
S.COSTA	2000 Industrials
SACYR VALLEHERMOSO	2000 Industrials
SAG GEST	5000 Consumer Services
SEMAPA	2000 Industrials
SONAE	5000 Consumer Services
SONAE IND.SGPS	2000 Industrials
SONAECOM,SGPS	6000 Telecommunications
SPORTING	5000 Consumer Services
SUMOL COMPAL	3000 ConsumerGoods
TEIXEIRA DUARTE	2000 Industrials
TOYOTA CAETANO	2000 Industrials
VAA VISTA ALEGRE	3000 ConsumerGoods
ZON MULTIMEDIA	5000 Consumer Services

Source: EL website

Appendix 5: Belgian sample Companies and their Industry Sector (ICB)

Companies	ICB
AGFA-GEVAERT	2000 Industrials
ALFACAM GROUP	5000 Consumer Services
BARCO	2000 Industrials
BEKAERT	2000 Industrials
BELGACOM	6000 Telecommunications
CAMPINE	1000 BasicMaterials
CFE (D)	2000 Industrials
COLRUYT	5000 Consumer Services
D'IETEREN	5000 Consumer Services
DECEUNINCK	2000 Industrials
DEFICOM GROUP	5000 Consumer Services
DELHAIZE GROUP	5000 Consumer Services
ELIA	7000 Utilities
EVS BROADC.EQUIPM.	2000 Industrials
EXMAR	2000 Industrials
FLUXYS CAT.D	0001 Oil&Gas
HAMON	2000 Industrials
I.R.I.S GROUP	9000 Technology
JENSEN-GROUP	2000 Industrials
KEYWARE TECH. (D)	9000 Technology
KINEPOLIS GROUP	5000 Consumer Services
LOTUS BAKERIES	3000 ConsumerGoods
MOBISTAR	6000 Telecommunications
MOURY CONSTRUCT	2000 Industrials
PARC PARADISIO	5000 Consumer Services
PCB	5000 Consumer Services
PICANOL	2000 Industrials
PUNCH INT.	2000 Industrials
RECTICEL	1000 BasicMaterials
RESILUX	2000 Industrials
ROSIER	1000 BasicMaterials
ROULARTA	5000 Consumer Services
SABCA (D)	2000 Industrials
SIOEN	3000 ConsumerGoods
SOLVAC NOM(RETAIL)	1000 BasicMaterials
SYSTEMAT	9000 Technology
TELENET GROUP	5000 Consumer Services
TESSENDERLO	1000 BasicMaterials
THENERGO (D)	7000 Utilities
VAN DE VELDE	3000 ConsumerGoods
ZETES INDUSTRIES	9000 Technology

Source: EB website